Investigating Correlates of Aggressive Behaviour in South African Children and Young Adolescents Living in the Western Cape: The Role of Empathy

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ABSTRACT

Escalating rates of aggression in South African schools, particularly in the Western Cape, are disconcerting. The early childhood through adolescent years is therefore an important platform for investigations to inform strategies to reduce and prevent aggressive behaviour. Studies conducted outside of South Africa have identified numerous correlates of aggressive behaviour; investigation in South Africa has, however, been sparse. The role of empathy, in specific, has been limited to one prior investigation. Furthermore, while empathy is considered an important construct in explanations of aggressive behaviour internationally, theoretical and methodological issues have undermined findings to date. Our understanding of the relationship between empathy and aggressive behaviour needs refining.

I investigated the role of empathy, while simultaneously investigating the role of several known correlates of empathy and aggressive behaviour in typically developing young adolescents (N = 160, ages 11-13; Study 1) and children (N = 76, ages 6-8; Study 2) living in the Western Cape of South Africa. To improve on previous investigations, I employed a framework informed by both neurobiological and behavioural approaches. I conceptualised empathy as comprising affective and cognitive components, as well as a self-regulation component concerned with regulation of affective states. Employing a contextual approach, I argued that the interaction between these empathy components along with multiple contextual factors would provide a more nuanced understanding of the relationship between empathy and aggressive behaviour.

I used hierarchical regression and structural equation models to investigate the correlates of aggressive behaviour. Empathy was significantly correlated with Aggressive Behaviour in young adolescents, but not in children. Furthermore, as expected, contextual factors were also significantly correlated with Aggressive Behaviour: Household Income, Parenting Style, and Parent Empathy were correlated with Aggressive Behaviour in young adolescents, while among the measures taken only Parenting Style was correlated with Aggressive Behaviour in children. Future investigations should, as in the current dissertation, work towards articulating the complex web of relationships between correlates of aggressive behaviour and their changes across development.

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INTRODUCTION

"*Empathy, and the lack of it, is an important construct in explanations of the most appealing and appalling aspects of human behaviour*." (Dadds et al., 2008, p. 111)

Aggression and violence are a major global social problem, and particularly so in South Africa, where the rates of murder, domestic violence, rape, and crime are among the highest in the world (Adar & Stevens, 2000; Ahmad, 2004; Foster, 2012; Seedat, Van Niekerk, Jewkes, & Ratele, 2009). Furthermore, as in a number of other countries, young people in South Africa are not only the most likely victims of aggressive and violent acts, but are also the most likely *perpetrators* of such acts (Foster, 2012; Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002; Seedat et al., 2009). The escalation of aggressive and violent acts in schools in the Western Cape province of South Africa is particularly disconcerting (Burton, 2008; South African Council of Educators (SACE), 2011). This escalation has, for one, been tied to increased levels of gansterism in this province, particularly in coloured[1] as well as poorer communities (Pinnock, 2016; Ward & Cooper, 2012). Given the detrimental consequences of these acts, identifying the factors which contribute to the high rates of aggressive and violent behaviour in South Africa, and how they do so, is a crucial step towards their reduction and prevention. Moreover, since early aggressive behaviour is associated with later aggression, delinquency, and criminality (Farrington, 1989; Kane-Berman & Cronjé, 2007; Moffitt, 1993; Pingault et al., 2013; Silverthorn & Frick, 1999), the early childhood through adolescent years is an important platform for investigations to inform strategies to reduce and prevent future aggression and violence.

Studies conducted outside of South Africa have identified numerous correlates of aggressive behaviour. Empathy is one such correlate: As Dadds and colleagues (2008) point out, empathy is an important construct in explanations of the most appalling of human behaviours. A substantial body of literature has identified empathy as an important correlate of aggressive behaviour, with deficiencies in empathy generally associated with a greater likelihood of aggressive, delinquent, conduct disordered, and antisocial behaviour (Cohen &

[1] 'Coloured' denotes mixed race individuals in South Africa. Given that 'Coloured' is a term used during the Apartheid era, it is not ideal to refer to a group in this way. Nevertheless, racial category terms continue to be used in post-Apartheid South Africa in attempts at redress like employment equity and university acceptance. The use of these categories reflects that different racial groups still face different challenges. Thus, an argument can be made that it is important that race be considered in investigations in South Africa. Despite the end of Apartheid, many communities in South Africa are still largely race-based (Christopher, 2001). Additionally, while racialized income and economic inequality is decreasing, it still persists (Leibrandt, Finn, & Woolard, 2012; Nattrass & Seekings, 2001). As such, race is something to consider in South Africa.

Strayer, 1996; de Kemp, Overbeek, de Wied, Engels, & Scholte, 2007; Gonzalez-Gadea et al., 2014; Joliffe & Farrington, 2004, 2007; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; van Langen, Wissink, van Vugt, van der Stouwe, & Stams, 2014). In South Africa, however, the literature on this topic is surprisingly limited to one published study (see Malcolm-Smith, Woolley, & Ward, 2015). This is problematic given that behaviour is context-specific. Given the very different contextual challenges present across countries, the relationship between empathy and aggressive behaviour may well differ across countries. Further investigation of the relationship between empathy and aggressive behaviour in the South African context is therefore warranted (Malcolm-Smith et al., 2015; Pinnock, 2016; Ward, van der Merwe, & Dawes, 2012). Additionally, the role of other contextual factors has also predominantly been inferred from international findings; investigating the correlates of aggressive behaviour in South Africa is therefore warranted.

Importantly, while there has been much evidence to support a relationship between empathy and aggressive behaviour, findings regarding this relationship have not been uniform (see Cohen & Strayer, 1996; Lovett & Sheffield, 2007; Vachon, Lynam, & Johnson, 2013). These mixed findings stem from a number of theoretical and methodological issues. Firstly, our understanding of this relationship is undermined by inconsistent and inadequate conceptualisations of empathy as well as the use of broad definitions of aggressive behaviour (see Decety, 2011; Mar, 2011; and Tremblay, 2000). It is consequently difficult to draw meaningful conclusions from studies and to compare findings across studies. Secondly, investigations into the relationship between empathy and aggressive behaviour have erroneously underemphasized the role of other contextual factors (Joliffe & Farrington, 2004). This approach, while simplifying matters, is problematic as it compromises the ecological validity of findings. As behaviour is embedded in context, it would be best understood in context. Additionally, decades of empathy research have been hampered by measurement issues (Lovett & Sheffield, 2007; Piotrowska, Stride, Croft, & Bowe, 2015). Lastly, the relationship between empathy and aggressive behaviour in children and adolescents has predominantly been investigated in a variety of clinical and incarcerated samples (see Joliffe & Farrington, 2004; Lovett & Sheffield, 2007), which has resulted in a number of limitations in our understanding. The focus on non-typical samples in more recent years has contributed to the neglect of investigations in child samples, and a poor understanding of the correlates of aggressive behaviour in typically developing young people. A more refined understanding of the relationship between empathy and aggressive behaviour warrants that the sources of mixed findings be adequately addressed.

This dissertation investigated correlates of aggressive behaviour in typically developing coloured children and young adolescents living in the Western Cape of South Africa, with specific emphasis on the role of empathy. It improved on previous studies which have investigated the relationship between empathy and aggressive behaviour by addressing theoretical and methodological issues which have compromised findings to date. To do so, I investigated the relationship between empathy (deconstructed into an Affective, a Cognitive, and an Affect Regulation component) and aggressive behaviour (specifically operationalised as externalising behaviours), while concurrently taking into account the role of several contextual factors situated within the individual's ecosystem of contexts. I furthermore adopted a multi-method and multi-informant approach to measure empathy and understand behaviour, employing several measures that have shown to be the most appropriate for the South African context to date. Finally, I chose to investigate correlates of aggressive behaviour, and the role of empathy in specific, in a sample of typically developing children and young adolescents living in the Western Cape of South Africa. This sample can be considered an at risk sample given the escalating aggression and violence in schools as well as high levels of gang activity in this province.

Notably, this dissertation employed a framework for investigating the relationship between empathy and aggressive behaviour which drew on two approaches, namely neurobiological and behavioural. To elaborate, I employed a framework for empathy informed by Decety and colleagues' neurobiological framework (see Decety, 2011; Decety & Jackson, 2004). This framework proposes that a complete model of empathy-driven behaviour will include affective and cognitive empathic processes, as well as self-regulatory processes of affect regulation. This approach called for the integration of two largely isolated bodies of literature; one concerned with affective and cognitive empathy and their relation to aggressive behaviour and the other concerned with self-regulation (affect regulation in specific) and its relation to aggressive behaviour. Furthermore, in keeping with a behavioural approach, I investigated the role of empathy while concurrently investigating the role of several contextual factors known to be related to empathy and/or aggressive behaviour. This contextual approach also called for the integration of several bodies of literature. While including all possible contextual factors would be ideal, it was impractical, and therefore only a selection was included, namely age, gender, general intellectual functioning (including attention and working memory), parent empathy, parenting style, child attachment style, and socioeconomic status (SES).

Two studies were conducted to investigate correlates of aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa, with the goal of highlighting the role of empathy. Study 1 explored this relationship in young adolescents (aged 11-13 years, N =160) by building a model of aggressive behaviour in a sample of young adolescents (Phase 1, n = 80) and subsequently attempting to replicate this model in a second sample of young adolescents, demographically equivalent to the first sample (Phase 2, n = 80). Study 2 explored this relationship in a sample of children (aged 6-8 years, n = 76), who aside from age were demographically equivalent to the samples of young adolescents. A qualitative comparison of findings across studies also shed some light on differences in correlates across age bands. In doing so, this dissertation provided an original contribution to both national and international literature, and was of direct importance to both theory and practise.

Overview of Chapters

Following this overview, Chapter One places aggressive behaviour in context. To start with, Chapter One provides a general review of the literature on aggression and violence, globally and in South Africa. In doing so, it highlights the need to understand the correlates of aggressive behaviour in young people, specifically in the Western Cape of South Africa. The value of adopting a contextual approach to understanding the correlates of aggressive behaviour is also stressed in this chapter. To illustrate I argue that the relationship between empathy and aggressive behaviour should become clearer when concurrently investigating the role of other important contextual factors; in South Africa SES is one such factor. Chapter One then concludes by stressing the importance of paying attention to how aggressive behaviour is defined. Overall, Chapter One draws attention to theoretical and practical value of investigating the correlates of aggressive behaviour.

Chapters Two and Three are concerned with the conceptualisation of empathy (as defined in this dissertation as well as previously) and its relation to aggressive behaviour. I argue that the relationship between empathy and aggressive behaviour would be best understood by employing a framework which conceptualises empathy-driven behaviour as comprising three components namely affective, cognitive, and regulation (see Decety, 2011; Decety & Jackson, 2004). This framework stresses the importance of including a regulation component in the conceptualisation of empathy, and specifically, those self-regulatory processes involved in the regulation of our affective states. This conceptualisation calls for the integration of two largely isolated bodies of literature. The first focusses on affective and

cognitive empathy in relation to aggressive behaviour (discussed in Chapter Two), while the second focusses on self-regulation in relation to such behaviour (discussed in Chapter Three).

Chapter Four is concerned with correlates of aggressive behaviour aside from empathy. It stresses the value of a contextual approach (such as Ecological Systems Theory; Bronfenbrenner, 1979) in understanding why aggressive behaviour may arise. I discuss evidence for the role of several contextual factors which have been known to be associated with empathy and/or aggressive behaviour in children and young adolescents. As will be seen, factors situated at all levels of the individual's ecosystem of contexts are implicated. Chapter Four then concludes with the rationale for this dissertation and the specific aims and hypotheses thereof.

In Chapter Five I introduce the methods used within Study 1 and Study 2. Both studies use identical measures, aside from one measure (i.e., Snap Game) which could not be used with younger children (Study 2). Chapter Six investigates the correlates of aggressive behaviour in two typically developing coloured young adolescent samples living in the Western Cape of South Africa (Study 1; age range 11-13 years), while Chapter Seven does so in a child sample (Study 2; age range 6-8 years). This is done while concurrently investigating the role of other potential contextual factors (discussed in Chapter Four). Post-hoc path analyses to clarify some unanswered questions are presented in Chapter Eight.

Finally, Chapter Nine presents a general discussion of the two studies. Here findings from both studies are discussed in the context of current theory. Implications for theory are highlighted. Attention is also drawn to improvements on previous investigations. I conclude with a discussion of the limitations of this investigation, emphasizing the directions for future research.

CHAPTER ONE.
AGGRESSIVE BEHAVIOUR IN CONTEXT

Aggressive and violent behaviour pervades many societies. South Africa is no different. In fact, it is widely known that South Africa ranks as one of the most dangerous countries in the world (see Foster, 2012). In 2008 to 2009, for example, the murder rate in South Africa was approximately 4.5 times higher than the global estimate at 37 per 100 000 (Burger, 2009). Furthermore, across the globe (South Africa included) young people (i.e., the youth[2]) are most likely to be both perpetrators and victims of aggressive and violent acts (Foster, 2012; Krug et al., 2002; Seedat et al., 2009). For one, the escalation of aggressive and violent acts in schools in the Western Cape of South Africa is cause for particular concern (Burton, 2008; SACE, 2011). This escalation has been tied to increased levels of gangsterism in the province, particularly in coloured as well as poorer communities (Pinnock, 2016; Ward & Cooper, 2012). Given the consequences of aggressive and violent acts, the underlying factors facilitating such behaviour as well as programmes to prevent and treat such behaviour have been the focus of much research worldwide. Moreover, since aggressive behaviour early in life is associated with later such behaviour (e.g., Broidy et al., 2003; Farrington, 1989; Moffitt, 1993; Pingault et al., 2013), the formative years (i.e., early childhood through adolescence) are an important platform for research investigating risk factors for later aggressive behaviour.

To date, various risk and protective factors for aggressive and violent behaviour in young people have been identified (outside of South Africa), and several explanatory mechanisms have been hypothesized (to be discussed in Chapters One through Four). We are still, however, a long way from understanding precise causal mechanisms (Rutter, 2003; Tremblay, 2000). Two important considerations arise when investigating these factors and mechanisms. Firstly, an ecologically valid investigation requires that one take into account that behaviour is embedded in context and that child development occurs in an ecosystem of contexts (Bronfenbrenner, 1979). To illustrate, in South Africa, the relationship between empathy and aggressive behaviour requires further investigation as research investigating this relationship is limited to one study (Malcolm-Smith et al., 2015; Pinnock, 2016; Ward et al., 2012). Furthermore, this relationship should become clearer when concurrently investigating

[2] The terms ‘child’, ‘youth’, and ‘young people’ are often used interchangeably and loosely throughout the literature (Ward, 2007a). In this chapter, ‘child’ refers to individuals ranging from infancy through until adolescence. Adolescence ranges from 11-18 years, while ‘young people’ and ‘youth’ includes children, adolescents and young adults.

the role of contextual factors at all levels of the child's ecosystem of contents. Several factors have previously been identified as important correlates of aggressive behaviour (see Chapter Four); in South Africa SES is one such factor (Seedat et al., 2009; Ward, 2007a). Secondly, a narrow and precise definition of aggressive behaviour should be employed (Bandura, 1973; Tremblay, 2000). Given the heterogeneity in aetiology of broadly defined aggressive behaviour, broad definitions undermine our understanding of the underlying factors associated with aggressive behaviour. Together, a contextual approach which employs a narrow definition of aggressive behaviour should facilitate a more nuanced understanding of the factors associated with aggressive and violent behaviour in young people.

In Chapter One I start with a brief contextualisation of global aggressive and violent behaviour and then discuss this in the South African context. Next, I discuss a framework for understanding how aggressive behaviour comes about. The need to further investigate the role of empathy is highlighted here, and the importance of concurrently considering the role of SES as well as other contextual factors in South Africa is stressed. Lastly, I discuss definitional issues surrounding aggressive behaviour, at which point a word on sample choice is warranted.

Aggression and Violence Across the Globe

Aggression and violence are undoubtedly a major global social problem with serious detrimental consequences for victims, communities, as well as aggressors (Barbarin, Richter, & de Wet, 2001; Card, Stucky, Sawalami, & Little, 2008; Dawes, Tredoux, & Feinstein, 1989; Foster, 2012; Krug et al., 2002; Scott, Knapp, Henderson, & Maughan, 2001; Shields, Nadasen, & Pierce, 2008). Most obvious of these consequences perhaps is the cost of life in terms of death and injury as well as the economic costs involved (e.g., money spent on health care and policing) (Foster, 2012). The human cost is also substantial. For example, the grief, loss, and/or pain experienced are immeasurable. Furthermore, a climate of fear and anger generally exists in environments with high rates of aggression and violence, which is in turn responsible for much psychological distress (Foster, 2012; Fowler, Tompsett, Braciszewki, Jacques-Tiura, & Baltes, 2009; Shields et al., 2008; Ward, Flisher, Zissis, Muller, & Lombard, 2001). Aside from these costs, young people living in these environments are also more likely to engage in aggressive behaviour themselves (Attar, Guerra, & Tolan, 1994; Flannery, Wester, & Singer, 2004; Fowler et al., 2009; Gorman-Smith & Tolan, 1998; Holt, Buckley, & Whelan, 2008; van der Merwe, & Dawes, 2000). Consequently, it is important to

address the factors associated with aggressive behaviour to avoid the costs associated with them, and also to prevent the perpetuation of further aggressive and violent behaviour.

Youth violence and aggression. Violence and aggression in young people is a widely acknowledged social problem (see Foster, 2012; Krug et al., 2002). Children and adolescents exhibit high rates of aggressive behaviour (Foster, 2012; Ward, 2015), and it is furthermore well-established that young people are most likely to be perpetrators of violence (Foster, 2012; Krug et al., 2002; Seedat et al., 2009). For example, violent acts are most often committed in the late teens through early 20's (Farrington, 1986; Moffitt, 1993; Ward, 2015). In addition to this, aggressive behaviour early in life is associated with later aggressive behaviour and also delinquent, criminal, and violent behaviour (Broidy et al., 2003; Kane-Berman & Cronjé, 2007; Farrington, 1989; Moffitt, 1993; Pingault et al., 2013; Silverthorn & Frick, 1999). To illustrate, Pingualt and colleagues (2013) found that 9.5 % of their sample who were classified as being on a high aggression trajectory at ages 6-12 years represented 28.2% of young adults with a criminal record at age 24, and represented 57.4 % of all violent crime charges. The early years therefore form an important platform for research investigating correlates of aggressive behaviour. Findings from these investigations can inform early intervention strategies for reducing and preventing later aggressive behaviour.

Important to note at this point is that aggressive and violent behaviour are not interchangeable terms and therefore researchers should avoid conflating them. Aggression and violence should also not be thought of as lying on a continuum. However, as pointed out previously, given that early aggressive behaviour has been associated with an increased likelihood of violent behaviour later in life, aggressive behaviour early in life can be considered a risk factor for violent behaviour – a widespread social problem. Definitional considerations are discussed in more detail at a later point in this chapter.

Youth violence and aggression in South Africa. The prevalence of aggressive and violent acts committed by young people in South Africa is particularly unsettling (Kane-Berman & Cronjé, 2007; Ward, van der Merwe, & Dawes, 2012). As indicated above, the escalation of school-based violence is cause for particular concern (Burton, 2008; SACE, 2011). Jefthas and Artz (2007) go as far as to describe schools as 'sites of violence'. Although school-based violence is by no means a new phenomenon, the serious nature of the acts that are being committed is disconcerting (Leoschut, 2008). While bullying is still commonplace, more serious forms of victimisation are on the rise. To illustrate, the 2011 School Based Violence Report from the South African Council of Educators (SACE) cites examples such as the murder of an 8 year old boy by axe by two of his school peers, multiple

stabbings, as well as violence in the form of shootings, assault, and rape on school premises (SACE, 2011). These acts are escalating in the majority of primary and secondary schools in South Africa (Burton, 2008).

In the Western Cape of South Africa, gang activity is considered one of the most severe crime problems, and contributes significantly to the rates of violence and crime (Kinnes, 1995; Pinnock, 2016; van Wyk & Theron, 2005). Dubbed "Gang Town", certain parts of Cape Town (situated in the Western Cape) are known to be home to an alarmingly large number of gangs, many of which are violent (Pinnock, 2016). The Cape Flats, a predominantly coloured community in one region of Cape Town, is particularly well-known for its association with high levels of gangsterism (Douglas-Hamilton, 1995; Soal, 1988; Pinnock, 2016; van Wyk & Theron, 2005). While gang activity is not endemic to coloured communities, and is on the rise in other communities in South Africa, there is a long history of gangsterism in coloured communities in the Western Cape (Glaser, 2000; Pinnock, 1982, 2016; Standing, 2005).

The escalation of aggression and violence in schools has been tied to increased levels of gangsterism, particularly in coloured as well as poorer communities (Pinnock, 2016; Ward & Cooper, 2012). The clandestine nature of gangs has, however, thwarted many investigations. What is known is that gang composition has changed over the years. Since the late 1990's gangs have become younger (Haefele, 1998), with gang members often being recruited from the local youth and both primary and secondary schools (Standing, 2005). Children as young as 11 and 12 years of age are now becoming involved in gang activity (Leggett, 2005; Ward & Bakhuis, 2009). Furthermore, while male adolescents are prime targets for recruitment (Pinnock, 2016; Stolzenberg & D'Alessio, 2008), girls are also recruited into gangs, and all-girl gangs exist (Joe & Chesney-Lind, 1995; Ward, 2007a). Consequently, we see an increase in gang-related incidents on school grounds, involving both boys and girls (Allie, 1996; SACE, 2011).

To conclude, while high rates of aggressive and violent behaviour are not endemic to South Africa, Altbeker (2007) points out that "what makes South Africa's problem unique is not so much the volume of crime as its extraordinary violence" (p. 33). This is reflected in the violent nature of criminal activity depicted in crime figures (Foster, 2012) as well as in the escalation of the serious nature of acts being committed in primary and secondary schools (Leoschut, 2008). In the Western Cape, increased violence on school grounds as a result of gang activity is particularly notable (SACE, 2011). Understanding which factors play a role in the high numbers of aggressive and violent acts and the increasingly violent nature of these

acts, and how they do so, is therefore pertinent. Investigating the factors that are associated with aggressive behaviour in school-aged children in the Western Cape of South Africa therefore holds much value.

A Framework for Understanding Aggressive Behaviour in Youth: Ecological Systems Theory

Behaviour is always embedded in context and can therefore be better understood if the role of context is taken into consideration. For example, Ecological Systems Theory (EST; Figure 1) is frequently employed to explain child development and, consequently, behaviour (Bronfenbrenner, 1979; van der Merwe, Dawes, & Ward, 2012). The EST framework posits that children grow up within an ecology of contexts (Ward, 2007a). In brief, risk and protective factors operate at several levels of the environment, including the individual context, the everyday contexts (i.e., the microsystem), as well as broader community and societal contexts (i.e., the exosystem), all of which are then situated within the greater context informed by values, culture, customs, and laws (i.e., the macrosystem) (Bronfenbrenner, 1979). The factors within these contexts furthermore influence individuals differentially across age (i.e., the chronosystem). According to EST, aggressive behaviour results from the complex interactions between the individual context (i.e., individual characteristics) and the protective and risk factors the child is exposed to within different contexts across time. Such a contextual approach to understanding aggressive (and violent) behaviour is standard in violence prevention research (Ward et al., 2012).

In addition to this, EST also stresses that behaviour is reciprocally determined (Grusec, 1992; Sameroff, 1975). In other words, the reciprocal interactions between the individual and his/her environment play a role in the individual's behaviour (Bronfenbrenner, 1979). Essentially, behaviour is transactional in nature (Koshanska & Kim, 2012). Take, for example, a child (Jon) interacting with other children at school. Jon's behaviour elicits a particular response from the environment (the other children), which elicits Jon's subsequent behaviour, and so on. In one scenario, Jon behaves in a non-aggressive manner, which in turn elicits disapproving behaviour from the other children. Jon then modifies his behaviour to seek approval by behaving aggressively. In this way, Jon's behaviour is reciprocally determined.

In keeping with EST, Social Learning Theory is also often drawn on to explain how complex social behaviours such as aggression and violence come about (Bandura, 1977; Anderson & Bushman, 2002; Ward, 2007a). To elaborate, children learn how to behave

through observing models of behaviour, which allow them to form mental representations of behaviours. According to EST, the most influential of these models are situated within the everyday contexts (e.g., family, school). For example, Jon witnesses his father using physical aggression when his father is angry. As a result, Jon learns that this behaviour is acceptable when one is angry. Furthermore, the broader contexts also serve as 'models' for behaviour (e.g., community, culture, laws). For example, children living in areas with high levels of community violence may learn that violent behaviour is acceptable. Essentially, through exposure to societal sources, children learn how to behave and what to expect when they behave in certain ways.

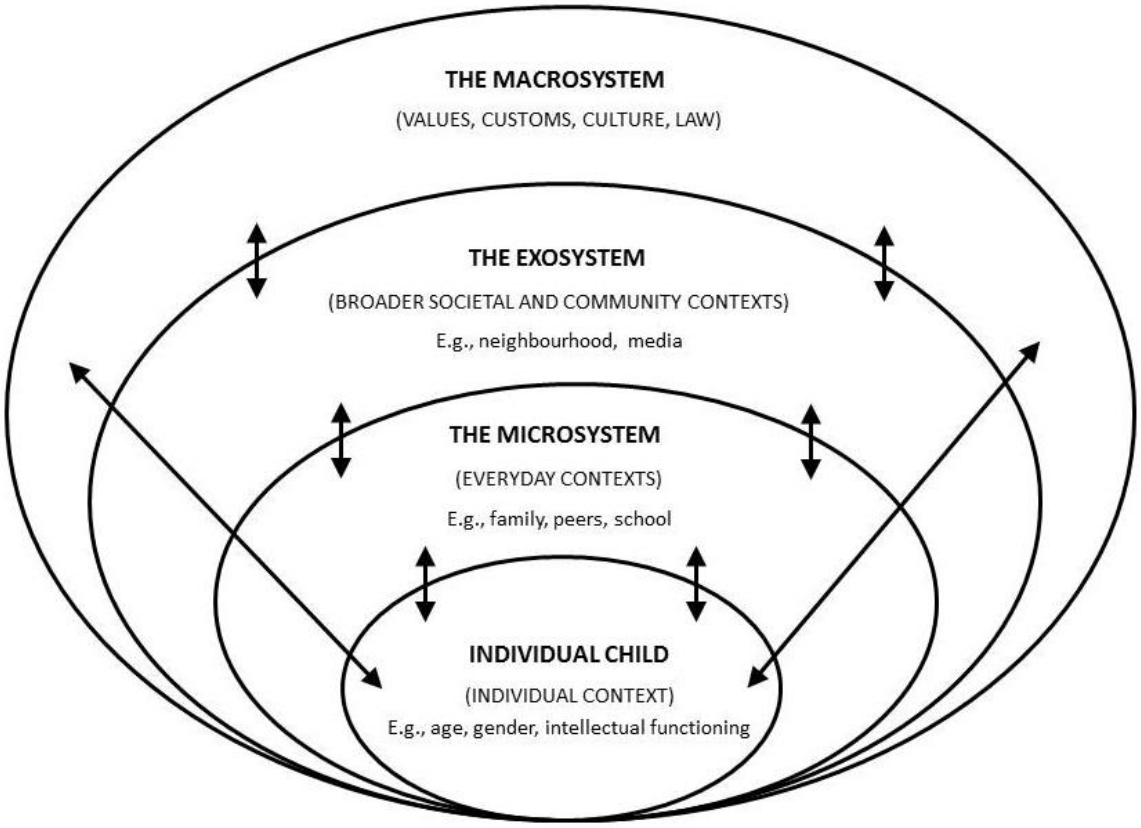

Figure 1. Ecological Systems Theory model. As illustrated, the individual is situated within an ecosystem of contexts. Arrows represent bi-directional influences across and within contexts. Adapted from "Violence, violence prevention, and safety: A research agenda for South Africa," by C. L. Ward et al., (2012), *South African Medical Journal, 102*, p. 215.

The development of aggressive behaviour. No one single factor results in the development of aggressive behaviour (Reebye, 2005; Tremblay, 2000). Furthermore, not all aggressive behaviour results from learning. While more recent investigations have focussed on a social learning explanation for aggressive behaviour, earlier investigations focussed on

instinctual processes; in other words, innate tendencies to aggress. Take, for example, physical aggression. Given its evolutionary significance, Tremblay (2015) speaks of physical aggression as a "crucial component of human's behavioural development" (p. 2). Human infants start to use physical aggression towards the end of their first year of life, as soon as they have developed adequate motor skills (e.g., to kick, pull, etc.) (Hay, Mundy, & Roberts, 2011; Tremblay et al., 1999). The use of physical aggression then increases during the early years, peaking between 2 and 4 years (Tremblay & Côte, 2009), at which point the frequency begins to decrease. This decrease coincides with children increasingly learning to use alternatives to physical aggression as they get older (Nagin & Tremblay, 1999) and also the development of self-regulation and inhibition skills.

Importantly, the EST approach incorporates both innate and learning origins for the development of aggressive behaviour. For example, the innate tendency to aggress is an internal context factor, which the individual brings to the bigger context. The external context may facilitate further learning of aggressive behaviour. Internal context – in this instance the drive to aggress – and external context (factors situated outside of the individual) interact, which in turn may play a role in the development of aggressive behaviour. In other words, the innate tendency to aggress places one at risk for the development of aggressive behaviour, while other factors then increase or decrease this risk.

Risk and protective factors. A number of risk and protective factors for aggressive and violent behaviour in young people have been documented to date. These factors are situated within all levels of the EST framework (see Figure 1 for examples). For example, the role of individual context factors such as gender and intellectual functioning, everyday contexts such as family and school, as well as broader societal and community contexts such as socioeconomic status, to aggressive and violent behaviour has received much attention internationally (Hoeve et al., 2009; Jolliffe & Farrington, 2004, 2007; Piotrowska et al., 2015; Van Langen et al., 2014). This knowledge base/research focus is particularly established in what Heinrich, Hein, and Norenzayan (2010) refer to as WEIRD societies (i.e., Western, Educated, Industrialized, Rich, and Democratic societies). Investigations in the South African context, in contrast, have been markedly few; with the majority of studies focussing on the relationship between SES and aggressive and violent behaviour (Morrow, Panday, & Richter, 2005; Seedat et al., 2009; Ward 2007a). This is problematic as each country presents its own set of challenges and context (Ward & Cooper, 2012). For example, investigations into the phenomenon of youth violence and gangs across contexts have suggested that the

explanations for this phenomenon in the South African context are much more complex than US theories of adolescent rebellion and social disorganization (Dowdney, 2005; Hagedom, 2005; Leggett, 2005; Standing, 2003, 2005, 2006; Ward, 2007b). We should therefore not assume that risk and protective factors operate in the same manner across countries.

Consequently, the most effective intervention programmes are driven by theory generated in the contexts in which they are to be employed; intervention programmes are not universally effective. Intervention programmes for South Africa would therefore be best informed by theory generated in the South African context (Ward & Cooper, 2012). Despite this, South African intervention programmes are often informed by international findings (Parker, Dawes, & Far, 2004; Steyn, 2005). For example, Ward and Cooper (2012) point out that the majority of prevention strategies employed for gang violence have been validated in the context of high income and male offenders. In South Africa, these programmes would need to be adapted for the context (i.e., low income and both male and female offenders) and then evaluated once again before their effectiveness can be judged. Moreover, the first step towards effective intervention requires further investigation of the contextual factors that are associated with aggressive and violent behaviour in the South African context.

Empathy as a protective/risk factor. Empathy is one contextual factor that requires further attention in the South African context. A vast body of literature generated outside of South Africa has implicated empathy as an important construct in explanations of aggressive, delinquent, conduct disordered, antisocial, and violent behaviour, both in theory and in practise (Dadds et al., 2008; Jolliffe & Farrington, 2004, 2007; Letourneau, Duffet-Leger, Levac, Watson, & Yung-Morris, 2011; Miller & Eisenberg, 1988; Piotrowska et al., 2015; van Langen et al., 2014). Empathy is considered so important that intervention programmes often target empathy development for successful change (Joliffe & Farrington, 2007; Lovett & Sheffield, 2007). In his book on gang violence in Cape Town (South Africa), Pinnock (2016) cites empathy as an important factor to take into account in explanations of aggressive and violent behaviour in young people. Despite the importance empathy is afforded, internationally and in South Africa, only one study has investigated the relationship between empathy and aggressive behaviour in the South African context (Malcolm-Smith et al., 2015). Further investigation of the relationship between empathy and aggressive behaviour in the South African context is therefore warranted.

To complicate matters, it has long been assumed that if one is able to empathise with another, one is less likely to behave in an aggressive manner. However, this age-old assumption is challenged by a persistent inconsistency in research findings (Joliffe &

Farrington, 2004; 2007; Miller & Eisenberg, 1988; Lovett & Sheffield, 2007), and is questioned in a recent meta-analysis entitled *The (non)relation between empathy and aggression* (Vachon et al., 2013). The question then arises: Does the age old assumption hold? Are empathy and aggressive behaviour associated with one another, and if so, how?

According to EST, the role of empathy should become clearer when concurrently investigating the role of other important contextual factors. While a number of factors have been identified internationally, Ward (2007a) argues that SES is perhaps one of the most important factors associated with aggressive and violent behaviour in South Africa. Consequently, when investigating correlates of aggression and violence in South Africa, the role of SES should not be overlooked. For one, low SES is associated with aggressive and violent behaviour in young people (Demosthenous, Bouhours, & Demosthenous, 2002; Nagin & Tremblay, 2001; Ward, 2007a) as well as gang membership (Pinnock, 2016; Ward, 2007a; Ward & Cooper, 2012). Furthermore, the widespread poverty, unemployment and income inequality in South Africa are important social factors supporting aggression and violence (Seedat et al., 2009). In addition to this, SES is associated with factors within every level of the child's ecosystem (i.e., individual, every day, community and societal contexts). For example, low SES is associated with lower intelligence (individual context; Lynn & Vanhanen, 2012), poorer quality of parenting (everyday level; Dodge, Malone, & Greenberg, 2008), and higher rates of youth violence (societal level; Dodge et al., 2008; Foster, 2012). The indirect associations of SES with aggressive behaviour are therefore multiple. Consequently, it is important that investigations into correlates of aggressive behaviour in South Africa take into account the role of numerous contextual factors, including SES.

In sum, EST posits that behaviour arises from the complex interaction between numerous risk and protective factors situated within the individual's ecosystem of contexts across time, and stresses that behaviour is reciprocally determined. Since intervention programmes employed in South Africa are best informed by theory gained from South African studies, further investigation of the relationship between empathy and aggressive behaviour in South Africa is necessary. Furthermore, given the widespread poverty, unemployment, and income inequality in South Africa, the role of empathy will likely become clearer when taking into consideration the role of SES, among other contextual factors. A contextual approach to understanding aggressive and violent behaviour in young people should therefore facilitate an ecologically valid understanding of the correlates of aggressive behaviour in young people in South Africa – a very important step towards

informing intervention strategies aimed at preventing and reducing the rates of aggression and violence in South Africa.

Defining Aggressive Behaviour

To date, aggressive behaviour has most frequently been defined from a moral standpoint as behaviour that is intended to be harmful to another person (Loeber & Stouthamer-Loeber, 1998; see Tremblay, 2000). Over time, aggressive behaviour has come to refer to a range of diverse activities subsumed under this omnibus label; reference is made to a range of behaviours including direct, indirect, social, covert, relational, physical aggression, and externalising aggression (Anderson & Bushman, 2002; Bandura, 1973; Cairns, Cairns, Neckerman, Ferguson, & Garie'py, 1989; Crick, 1995; Dodge & Coie, 1987; Feshbach, 1969; Macgowan, 1999; Ostrov & Keating, 2004). For example, while early research focussed on direct forms of aggression, especially acts of physical aggression (i.e., intentional harm as a result of physical acts such as kicking or hitting another), focus has over the years expanded to include indirect and more covert forms of aggressive behaviours such as relational aggression (i.e., intentional harm as a result of damaging others' social relationships through behaviours such as excluding others or spreading rumours about them; Dempsey, Sulkowski, Dempsey, & Storch, 2011). When precisely applied, each of the terms employed for aggressive behaviour refer to slightly different behaviours (Xie, Cairns, & Cairns, 2002).

One commonly used distinction in the literature is the distinction between direct aggressive acts (i.e., acts of physical aggression that directly confront the victim) and indirect aggressive acts (i.e., acts harming the victim by rejection or exclusion; Feshbach, 1969). In a meta-analysis of the relationship between aggression and its correlates in childhood and adolescence, Card and colleagues (2008) refer to these two broad categories of aggressive behaviours. They go on to describe each of these as a heterogenous class of behaviours, and further explain that most researchers accept some degree of blurring of the boundaries between the various types of aggressive behaviours. While slight differences in terminology and operational definitions are employed, the common theme once again emerges in that aggressive behaviour is concerned with behaviour intended to inflict harm or injury, whether it be by direct or indirect means.

More recently, aggressive behaviour has erroneously come to be defined more broadly (Piotrowska et al., 2015; see Tremblay, 2000). For one, different types of aggressive behaviour are at times being aggregated (Coie & Dodge, 1998; Piotrowska et al., 2015: Tremblay, 2000). Furthermore, researchers have begun to broaden investigation to include

other behaviours such as delinquent, conduct disordered, violent, and antisocial behaviour (Tremblay, 2000). As a result, these behaviours are being used more loosely to represent aggressive behaviour. They should not, however, be used interchangeably. Not all aggressive behaviour would be described as delinquent, conduct disordered, violent, and/or antisocial. For example, Tremblay (2000) explains that aggregating aggressive behaviour with antisocial behaviour is as good as likening apples to fruits. Antisocial behaviour may well include aggressive behaviour, but aggressive behaviour would not always be described as antisocial. In fact, aggressive behaviour for the purposes of defending a friend, for example, could in a sense be described as prosocial behaviour. It is, however, understandable that delinquent, conduct disordered, violent, and antisocial are mistakenly aggregated. One explanation behind this broadening of investigation is that these behaviours are highly comorbid with aggression (Coie & Dodge, 1998). Another explanation is that it is likely a result of grouping behaviours that are socially undesirable (Tremblay, 2000). Regardless of the explanation, the use of such broad definitions is problematic.

In his commentary on a century of work on aggressive behaviour, Tremblay (2000) highlights this major problem in this field of research – a problem of definition. Essentially, this area of research suffers from a lack of measuring theoretically distinct subtypes of behaviour (Lovett & Sheffield, 2007; Tremblay, 2000). Tremblay (2000) explains that, contrary to earlier warnings that investigators use specific definitions of the problem behaviour they want to address, imprecise and broad definitions are being employed (also see Bandura, 1973). The aggregation of different types of aggressive behaviour which are theoretically distinct creates a major problem: Broad definitions hinder further understanding as aggressive behaviour in its broadest sense can be explained by a multitude of factors.

There is ample evidence to demonstrate heterogeneity in aetiology of broadly defined aggressive behaviour (e.g., based on manifestation, severity, age of onset, and developmental course) (Burke, Loeber, & Birmaher, 2002; Frick, 2009; Loeber & Stouthamer-Loeber, 1998; Moffit, 2006; Reebye, 2005). For example, the manifestation of callous-unemotional personality traits[3] has been associated with a particularly severe and violent pattern of aggressive and antisocial behaviour in children which seems to persist into adulthood, and is associated with poor treatment outcomes (Frick, Cornell, Barry, Bodin, & Dane, 2003; Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; Frick & White, 2008). Furthermore, Moffit

[3] Callous-unemotional (CU) traits refer to relatively stable personality traits characterized by a lack of guilt, an absence of empathy, shallow affect, and lack of fearfulness (Frick & White, 2008). The importance of CU traits for developmental models of aggressive and antisocial behaviour has been stressed.

and colleagues (Moffit, 1993; Moffit, Caspi, Dickson, Silva, & Stanton, 1996; Moffit, Caspi, Harrignton, & Milne, 2002) have proposed several developmental pathways for antisocial behaviour based on age of onset. Given the heterogeneity of aetiologies, studies should adopt specific definitions of aggressive behaviour. Investigating correlates of precisely defined aggressive behaviour is likely to facilitate a more nuanced understanding.

The question that follows is that of how then to operationalise aggressive behaviour. As is to be expected, operationalisations have varied from being very specific to very broad over the years. One operationalisation often employed is that of externalising behaviour problems. Externalising aggressive behaviour refers to rule-breaking behaviours such as disobedience and skipping school and aggressive behaviours such as teasing others. These behaviours are the most prevalent and persistent maladaptive behaviour seen in childhood, and have been identified as a major risk factor for later delinquency, crime, and violence (Campbell, 1995; Farrington, 1989; Moffit, 1993). All of these behaviours are reasonable to expect in a typically developing sample, some to a lesser degree than in a clinically aggressive sample. The operationalisation employed should therefore take into account the sample under investigation.

Sample choice. At this point, a word on sample choice is necessary. When investigating correlates of aggressive behaviour (such as empathy, for example) in children and adolescents, specifically in more recent years, the majority of researchers recruit samples from known problematic populations such as conduct-disordered, delinquent, and incarcerated individuals (i.e., often clinically aggressive samples) (see Miller & Eisenberg, 1988 vs. Joliffe & Farrington, 2004 and Lovett & Sheffield, 2007). This decision makes sense given the costs associated with these samples' behaviour. However, as a result of this focus on clinically aggressive and incarcerated samples, the knowledge base concerning the correlates of aggressive behaviour in non-clinical child and adolescent samples (i.e., typically developing samples) is very thin. Furthermore, this approach to investigating the role of empathy presents another problem: Take incarcerated samples, for example. Incarcerated samples are a unique and biased sample (Joliffe & Murray, 2012). The incarceration process itself influences behaviour, and has multiple psychological impacts (see Grounds & Jamieson, 2003; Lovett & Sheffield, 2007). We should therefore expect that empathy would be impacted. In keeping with this, van der Helm, Stams, van der Stel, van Langen, and van der Laan (2012) found that juvenile delinquents living a repressive prison climate scored lower on empathy. This could very well account for lower empathy scores in offenders

(Joliffe & Farrington, 2007; Joliffe & Murray, 2012). The direction of the relationship between empathy and aggression in this context (i.e., incarcerated) is therefore unclear.

Importantly, given the exceptionally high levels of aggressive and violent acts committed by young people in this country, further investigation of those factors that are associated with aggressive behaviour in typically developing children and young adolescents is also valuable. An argument can be made that while high levels of aggressive behaviour (to the point that they are described as clinically aggressive) are not expected in a typically developing sample, the typically developing South African child or young adolescent may be more likely to exhibit problematically high levels of aggressive behaviour that require attention. To illustrate, this may be the case in the Western Cape of South Africa where the rates of aggressive and violent acts as well as gang activity in schools are escalating. As a result of this climate of heightened aggression and violence, it is important that we understand which factors are associated with an elevated risk of aggressive behaviour in South African young people. Investigating the correlates of aggressive behaviour in a typically developing sample therefore holds much value.

To summarize, in the first part of Chapter One I briefly contextualised aggressive and violent behaviour internationally and in South Africa and, in doing so, I drew attention to the theoretical and practical value of understanding the factors that are associated with aggressive and violent behaviour. Firstly, I highlighted the need for a clearer understanding of the risk factors for such behaviour: this would enable reduction and prevention of aggressive and violent behaviour and their associated costs. To illustrate the practical need in South Africa, I highlighted the escalating aggression and violence in schools and in the Western Cape of South Africa in particular, and its association with increased gang activity. Secondly, I highlighted the need for further theoretical investigation internationally, but more so in South Africa. To elaborate, investigation into the correlates of aggressive and violent behaviour in South Africa is very sparse. Since intervention relies on a strong theoretical base generated in the context in which it is to be employed, a strong knowledge base is the first step towards reduction and prevention of aggressive and violent behaviour. Additionally, I drew attention to the value of a developmental approach, for theory and practise. To clarify, understanding and addressing the early risk factors for aggressive behaviour is likely to decrease the likelihood of later such behaviour. The formative years are therefore an important platform for this research.

In the second part of Chapter One I discussed two important considerations to take into account when investigating the correlates of aggressive behaviour. The first highlighted that behaviour is embedded in context and that, consequently, adopting a contextual approach such as EST is likely to facilitate a better understanding of aggressive behaviour. To illustrate, I drew attention to the need to investigate the relationship between empathy and aggressive behaviour in South Africa, and explained that this role will likely be better understood when considering its role concurrently with other contextual factors, such as SES in South Africa. The second consideration highlighted the importance of employing a narrow and specific definition of aggressive behaviour as different types of aggressive behaviour are theoretically distinct. A very specific operationalisation was employed in this dissertation; that of externalising behaviours. While this is not the narrowest definition one could employ, externalising behaviours have been identified as a major risk factor for later delinquency, crime, and violence. Linked to this is the importance of taking into account the sample under investigation.

Chapter One therefore set the background for this dissertation. In the subsequent three chapters I review the literature regarding correlates of aggressive behaviour in children and young adolescents. In Chapters Two and Three I discuss evidence for the relationship between empathy and aggressive behaviour (as conceptualised in this dissertation), while Chapter Four discusses evidence for the role of several other contextual factors previously found to be associated with empathy and/or aggressive behaviour. It is at this point that it is important to remember that the majority of the evidence presented in these chapters stems from investigations in samples described as WEIRD (i.e., Western, Educated, Industrialized, Rich, and Democratic sample; Heinrich et al., 2010). These investigations largely assume that there is very little variation across human populations in terms of psychology and behaviour. However, in stark contrast to this, Heinrich and colleagues (2010) explain that WEIRD societies are in fact the least representative of human psychology and behaviour. The value of investigating the correlates of aggressive behaviour in this South African context should be apparent.

CHAPTER TWO.

EMPATHY AND ITS RELATION TO AGGRESSIVE BEHAVIOUR

The construct of empathy has been notoriously problematic to define – a term fraught with interpretational ambiguity (Wispé, 1986). Philosophers and psychologists have long-debated its nature. Lipps (1903) originally labelled the psychological process of imaginatively projecting oneself into the situation of another *Einfülling*, which Titchener (1917) then coined as *Empathy* and described as "that process of humanizing objects, of reading or feeling ourselves into them" (p. 417). Since then the construct of empathy has been afforded a variety of definitions. As a result, it has been challenging to draw meaningful conclusions from studies and to compare findings across studies (Decety & Cowell, 2014; Gerdes et al., 2010; Lovett & Sheffield, 2007; Mar, 2011; Pederson, 2009). This difficulty is evidenced in the body of literature concerned with the relationship between empathy and aggressive behaviour. In Chapter Two I therefore review how empathy has been conceptualised to date. I then explain the reasoning behind the choice of conceptualisation in this dissertation, where I draw attention to the development of empathy. I conclude Chapter Two with a discussion of the evidence for and against a relationship between empathy and aggressive behaviour in children and young adolescents, internationally and in South Africa. Consequently, a word on measurement considerations is warranted.

Defining Empathy

What exactly empathy refers to (i.e., how to conceptualise and operationalize this construct) has been the subject of ongoing debate for several decades (Batson, 2009; Miller & Eisenberg, 1988; Preston & de Waal, 2002). The literature acknowledges the complexity of this construct, and reference is made to numerous components thereof such as altruistic behaviour, motor mimicry, emotion contagion, emotion understanding, empathic arousal, perspective-taking, and Theory of Mind (Blair, 2005; Decety, 2011; Decety & Lamm, 2006; Minio-Palluelo, Baron-Cohen, Avenanti, Walsh, & Aglioti, 2009; Preston & de Waal, 2002). These components of empathy are at times equated with each other and used interchangeably, despite empirical evidence that they should not be (see Batson, 2009, for example).

While a multitude of definitions/conceptualisations are employed throughout the literature, it is important to note the commonality among them: First and foremost, empathy is concerned with emotion-sharing. It involves the capacity to experience and understand how

another person feels (Decety & Lamm, 2006). Additionally, the ability to differentiate between the self and other is essential for understanding what empathy encompasses (Batson, Early, & Salvarani, 1997; Decety & Lamm, 2006; Ickes, 2003; Lamm, Batson, & Decety, 2006; Reik, 1949). In other words, empathy is concerned with the ability to blur the line between self and other (Klein & Hodges, 2001) while still being able to see that line. Gallese, Keysers, and Rizzolatti (2004) describe this as bridging the gap between first and third person while preserving your own identity. Essentially then, empathy is concerned with emotion-sharing "without confusion between oneself and others" (Decety & Lamm, 2006, p. 114).

In the next section I discuss several approaches to conceptualising empathy which are employed throughout the literature. I start by discussing the distinction between affective and cognitive empathy, a distinction commonly made, and subsequently briefly discuss motor empathy and other perception-action coupling theories of empathy. In doing so, the advances in our understanding of the neural mechanisms of empathy are brought to the foreground. I then shift attention to a performance definition of empathy – an approach commonly employed in psychological research. In contrast to neurobiological investigations, this approach relies heavily on behaviour to understand empathic processes. Finally, I discuss a more recent approach where empathy is conceptualised in terms of its underlying brain processes in relation to behaviour. As should become clear, an approach which incorporates behaviour into the neuroscience of empathy holds much value.

Affective and cognitive empathy. The most commonly used distinction in the literature is the distinction between affective and cognitive empathy. Although several scholars prefer to employ a purely affective definition of empathy (e.g., Feshbach, 1978; Hoffman, 1984; Eisenberg, Fabes, & Spinrad, 2006; Lovett & Sheffield, 2007), contemporary scholars (albeit not all) regard empathy as a multidimentional construct comprising both affective and cognitive components (e.g., Blair, 2005; Cohen & Strayer, 1996; Davis, 1983; Decety & Jackson, 2004; Eisenberg, 2002; de Kemp et al., 2007; Preston & de Waal, 2002). In this view, empathy involves the joint operation of both affective and cognitive processes. The affective component refers to the feeling of a similar emotion or sharing of an emotional state (Eisenberg & Fabes, 1990; Feshbach, 1978; Hoffman, 1984; Merhabian & Epstein, 1972; Soto & Levenson, 2009), whereas the cognitive component refers to the ability to identify and understand others' emotional states and perspectives (Hogan, 1969; Kohut, 1971; Vachon et al., 2014). The latter is similar to the concept of Theory of Mind (i.e., recognizing mental states in others, and understanding that others can "know, want, feel, or believe things" (Baron-Cohen, Leslie, & Frith, 1985, p. 38; Premack & Woodruff, 1978).

Essentially, affective empathy broadly refers to processes involved in *feeling* what someone else is feeling (i.e., in a sense understanding on a visceral level) whereas cognitive empathy refers to processes involved in *knowing* what someone else is feeling (i.e., understanding on a cognitive level).

Neurobiological studies support this distinction between affective and cognitive empathy (Decety, 2011; Jackson, Rainville, & Decety, 2006; Singer et al., 2004; Wicker et al., 2003; Zaki & Ochsner, 2012). The past two decades have demonstrated an exponential growth in interest in the neural mechanisms mediating empathy (see Decety, 2011). Findings have demonstrated that empathy draws on a large array of brain structures, and that these structures are not limited to the cortex. Empirical data suggest that affective empathy is facilitated by bottom-up (primitive) brain processes whereas cognitive empathy is facilitated by top-down (higher-order) brain processes (see Decety, 2011; Singer, 2006; Stone, 2006). Furthermore, findings from developmental neuroscience research have demonstrated that the affective and cognitive components of empathy involve interacting brain processes that partially overlap (Decety, 2011). Consequently, while affective and cognitive empathy are subserved by different neural substrates, they are also deeply interactive (Zaki & Ochsner, 2012).

Motor empathy and other perception-action coupling theories. Other neurobiological theories for empathy have also surfaced. For example, the notion of motor empathy and other perception-action coupling theories of empathy have gained some attention. Motor empathy is described as a tendency to imitate the motor responses of others, such as their facial expressions and posture (Hatfield, Cacioppo, & Rapson, 1994). This notion is also incorporated within Preston and de Waal's (2002) Perception-Action Model of empathy, which proposes that the perception of an action and/or state in another individual triggers one's own representations of this behaviour and/or state, which in turn triggers automatic and somatic responses. In keeping with this, Minio-Palluelo and colleagues (2009) argue that when we automatically imitate another individual's external expression of their mental state it triggers a similar mental state in us. Furthermore, simulation theories (such as Mirror Neuron Theory, for example) propose that an understanding of the intentions and emotions of others relies on internally simulating the state in the self (Goldman & Sripida, 2005). These theories are grounded in the notion that perception and action share the same neural networks (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996; Preston & de Waal, 2002; Rizzolatti & Arbib, 1998).

A performance definition of empathy. In contrast to neurobiological investigations, psychological approaches to investigating empathy have for a long time relied heavily on behaviour to understand empathic processes. This has resulted in the use of a performance definition of empathy in many instances. In other words, researchers measure the individual's general behavioural response patterns, and not their ability (i.e., competence). De Kemp and colleagues (2007), for example, investigate dispositional affective empathy and argue that it reflects the general ability to share emotions of others. The underlying assumption is that how we generally behave reflects our *ability* to behave in such a way. This definition is problematic, as behaviour does not always reflect ability. If my behaviour in various instances is not considered empathic, it does not necessarily mean that I *cannot* behave empathically. Moreover, I could also behave in a manner that appears to be driven by empathy, but is driven by something other than empathy. For example, a mother may behave in a nurturing manner towards her upset child, but be driven to do so out of guilt or a sense of responsibility. Empathy is thus not necessary for any particular behaviour, and therefore in logical terms is not necessarily part of it. Consequently, a performance definition of empathy is inherently flawed; empathy is an internal 'thing' concerned with internal processes. It can, however, play a considerable part in guiding our behavioural preferences and responses (Decety, 2011).

A framework for empathy: empathy-driven behaviour. While psychological approaches have relied heavily on measuring behaviour, neurobiological approaches (e.g., neuroimaging studies) have focussed on measuring the relationship between stimuli and brain activity and have consequently overlooked behaviour (Zaki & Oschner, 2012). Zaki and Oschner (2012) posit that, until recently, a lack of cross-talk between these approaches has limited our understanding of research findings. They argue that it will remain very difficult to interpret findings until we incorporate behaviour into the neuroscience of empathy. It is not surprising then that some researchers have begun to abandon the view of empathy as a unitary catchall construct consisting of various independent components and are moving towards conceptualising empathy in terms of the underlying brain processes in relation to behaviour (Batson, 2009; Decety, 2011).

Decety and colleagues (Decety, 2011; Decety & Jackson, 2004; Decety & Meyer, 2008; Decety & Moriguchi, 2007) propose a framework informed by evolutionary biology, cognitive neuroscience, behavioural neurology, and developmental science. Their approach aims at deconstructing empathy into its interdependent components, and understanding how the interaction between these components translates into empathy-driven behaviour (i.e.,

behaviour driven by empathy) or the absence thereof (i.e., behaviour not driven by empathy). According to their neurobiological framework, empathy-driven behaviour is a product of the interaction between bottom-up brain processes facilitating emotion-sharing (similar to the concept of affective empathy), top-down brain processes facilitating emotion awareness and understanding (similar to the concept of cognitive empathy), and the likelihood of engaging in a particular behaviour depends on how the affective states generated by these empathic processes are regulated (also facilitated by top-down processes). In this framework, the importance of self-regulatory processes (specifically affective regulation) as well as self-other awareness is stressed.

Each of the components as stipulated by Decety and colleagues' framework is underpinned by specific neural substrates (Decety & Jackson, 2004). This is in keeping with numerous neurobiological studies supporting the distinction between affective and cognitive empathy (Decety, 2011; Jackson, Rainville, & Decety, 2006; Singer et al., 2004; Wicker et al., 2003; Zaki & Ochsner, 2012). Furthermore, each of the components follows their own developmental trajectory (Decety, 2011). Human beings develop higher-order cognitive abilities (e.g., Cognitive and Regulatory Empathy) on top of the phylogenetically older biological mechanisms (e.g., Affective Empathy) (Singer, 2006; Stone, 2006). Finally, recent developmental neuroscience research has demonstrated that these components involve interacting brain processes that partially overlap (Decety, 2011). Echoing Zaki and Oschner (2012), the processes involved in empathy are deeply interactive (Decety, 2011).

This framework is best explained by an example. To illustrate, imagine you are in the queue at a grocery store and the toddler behind you, accompanied by his mother, throws a deafening tantrum: His mother has just told him he cannot have the chocolate that he wants. Think about what your reaction might be. How empathic will you be? *Will* you behave empathically (i.e., in a manner that seems to be driven by empathy for another)? There are several possible outcomes to this scenario (e.g., yell at the toddler, yell at the mom, allow the mom to be served before you, do nothing). You may, for example, empathize with the mother, which might down-regulate your negative feelings towards the toddler, and as a result, you might offer that the mother be served before you. Alternatively, imagine that while waiting in the queue you are irritable because of a headache. The yelling behind you is making matters worse. You subsequently turn around and tell the mother that she is a bad parent and that her child is in need of a decent scolding. In this scenario, while you are able to evaluate the mother's perspective, you may fail to down-regulate your irritation. Your behaviour therefore does not reflect your ability to empathise.

Affect regulation and self-other awareness. Key to Decety and colleagues' framework is that "empathy is something that needs to be regulated" (Decety, 2011, p. 92). The example demonstrates this by illustrating that sharing/understanding others' emotions, whether it is on an affective or cognitive level, does not necessarily lead to behaviour that is considered empathic. How emotion-sharing and understanding is regulated contributes to behaviour. According to this framework, self-regulatory processes of affect regulation are crucial top-down mediators of affective states and are thereby able to influence behaviour. Our affective and behavioural reactivity is modulated by self-regulation processes through the down-regulation of affect (e.g., emotions). Importantly, down-regulation of affect allows one to avoid personal distress and enable concern for others. Take, for example, a clinician interacting with a patient who is experiencing pain. The clinician's affective empathy response, if not adequately down-regulated, would likely result in personal distress which decreases the likelihood of concern for the other. Eisenberg (2000) describes this personal distress as a consequence of 'empathic over-arousal', where one's own personal distress becomes the focus instead of the other's need. Affect regulation is therefore key.

In line with this, Decety and colleagues' framework also stresses the importance of the ability to differentiate between the self and other as essential for understanding what empathy encompasses (in accordance with Batson et al., 1997; Decety & Lamm, 2006; Ickes, 2003; Reik, 1949). A clinician who is not able to differentiate between his/her own feelings and the patient's feelings is likely to become too distressed. Put bluntly, if a clinician were to resonate to a very large degree with the pain his/her patient were experiencing, the clinician's experience would likely be too distressing to allow for focus on the other (Decety, 2011), thereby inhibiting empathy-driven behaviour. The mechanism for self-other differentiation in effect acts as safeguard against personal distress. This in turn facilitates empathy-driven behaviour.

Note that Decety and colleagues' framework is different from the performance definition discussed earlier. It does not make the assumption that behaviour reflects ability. Built into this framework is a premise that to understand how empathy is reflected in behaviour, it is important that we take affect regulation processes into consideration. According to their framework, empathy itself is conceptualised as facilitated by affective processes of emotion-sharing and cognitive processes of emotion awareness and understanding as well as self-regulatory processes (specifically those involved in regulating affect). Furthermore, although these self-regulatory processes are not specific to empathic behaviour, they directly play a role in behaviour. Their framework therefore allows us to

investigate empathy by conceptualising it in terms of the underlying processes which give rise to empathy-driven behaviour. Key to this framework is that we investigate the role of self-regulatory processes involved in the regulation of affective states (see Chapter Three for further discussion).

The Approach Employed in this Dissertation

Conceptualisation of empathy. Given the conceptual overlap in the above-discussed definitions/conceptualisations, it is clear that it is incorrect to consider empathy a unidimensional construct. Today many scholars agree that empathy is a multidimensional construct comprised of affective and cognitive components which interact. Neurobiological studies support this view and demonstrate that bottom-up brain processes are associated with affective empathy while top-down brain processes are associated with cognitive empathy. Empathy is concerned with internal processes that guide our behaviour. Inferring empathic ability from behaviour is therefore problematic. For example, while it is true that to empathize requires the ability to identify, understand, feel, and/or share the emotional states and perspectives of others (de Wied, Goudena, & Matthys, 2005), behaviour that appears to be driven by empathy does not necessarily rely on this ability.

The shift towards conceptualising empathy in terms of its underlying brain processes in relation to behaviour holds much promise, and is considered by Zaki and Oschner (2012) to be a turning point in the research. Zaki and Oschner argue that only by incorporating behaviour into the neuroscience of empathy will we come closer to precisely characterizing the meaning of research findings. Decety and colleagues' neurobiological framework draws our attention to the importance of self-regulatory processes – particularly affect regulation processes – in understanding how empathic ability translates into behaviour. If we want to better understand the relationship between empathy and aggressive behaviour, it is important that we investigate how the affective states generated by affective and cognitive empathy processes are regulated. Behavioural research, on the other hand, draws our attention to the importance of contextual factors in understanding behaviour. Our understanding of the relationship between empathy and aggressive behaviour is limited if we do not take into consideration the role of context.

Context-specificity of behaviour. As stated in Chapter One, behaviour is embedded in context and can therefore be better understood by taking context into account. The behavioural context 'encourages' what Dadds and colleagues (2008) describe as 'appealing' behaviour (e.g., allowing the mom to be served first) or 'appalling' behaviour (e.g., yelling at

the mother, hitting the toddler). On the one hand we have ‘appealing’, prosocial behaviour, driven by empathising, and on the other we see ‘appalling’ behaviour, not driven by empathy, possibly aggressive and/or violent behaviour. You may be described as an empathic person by friends, yet yell at the mother in this context. The context (e.g., being irritable) encouraged your behaviour. Had you not been irritable you may have responded more empathically. This is, of course, simplifying matters, but does illustrate how a contextual factor such as mood can be the deciding factor in whether or not you engage in an ‘appealing’ or ‘appalling’ way.

In keeping with Decety and colleagues’ framework, I therefore propose that to better investigate the relationship between empathy and aggressive behaviour, empathy should be conceptualised as arising from affective, cognitive, and self-regulatory processes of affect regulation. Additionally, in keeping with a behavioural approach, since behaviour is context-specific, it is integral that the role of other factors both internal and external to the individual be taken into account when investigating the relationship between empathy and behaviour. This approach will likely facilitate a more nuanced and ecologically valid understanding of the relationship between empathy and behaviour; in keeping with EST (see Figure 2).

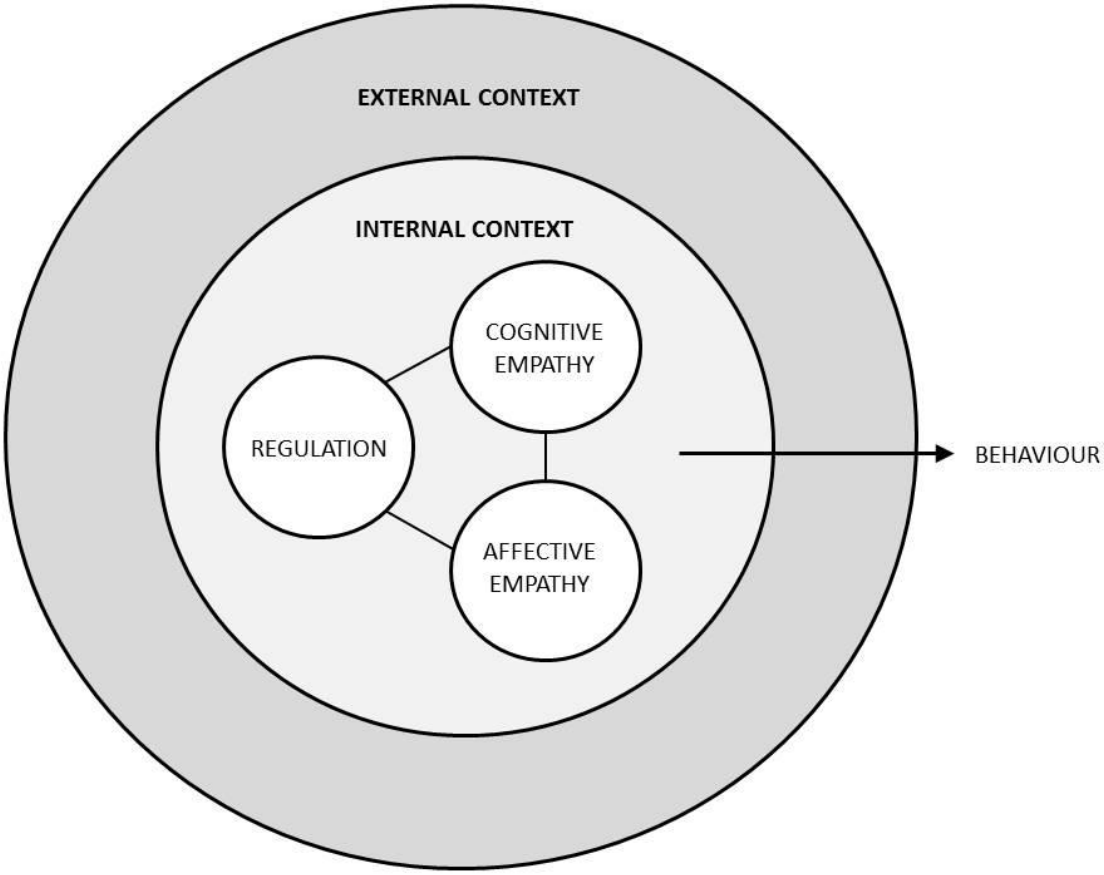

Figure 2. Conceptualisation of empathy. Figure 2 presents the conceptualisation of empathy employed in this dissertation. It represents a merger of neurobiological and behavioural approaches to investigate the relationship between empathy and aggressive behaviour. In keeping with a neurobiological approach, empathy is conceptualised as involving affective, cognitive, and affect regulation brain processes which interact to play a role in behaviour. In keeping with a behavioural approach, the relationship between empathy and behaviour can be better understood if we consider the behavioural context, both internal and external to the individual. Empathy is an internal contextual factor.

The Development of Empathy

Before discussing evidence for the relationship between empathy and aggressive behaviour, it is necessary to highlight the development of empathy, as this will shed some light on findings to date. The conceptualisation of empathy employed in this dissertation is in keeping with an evolutionary conceptual view. In this view, the origins of empathy are evolutionary; empathy is a phylogenetically ancient mechanism (Decety, 2011; de Waal, 2008). Behavioural manifestations of empathy are seen very early in development. One such example is that infants respond to the distress of other infants (Preston & de Waal, 2002). These early manifestations of empathy are considered manifestations of affective responsiveness – in other words, affective empathy. These are automatic, primitive responses, shared with many mammals, and are facilitated by bottom-up brain processes (see Decety,

2011). As discussed earlier, empirical data supports this notion. While these basic biological mechanisms are shared with other mammals, human beings develop higher-order cognitive abilities on top of these phylogenetically older biological mechanisms (i.e., social and emotional capacities) (Stone, 2006). The brain matures to allow for the understanding of mental states (i.e., cognitive empathy) and self-regulation (e.g., executive functions such as affect regulation and inhibitory control). In other words, the human brain has evolved to attain these 'newer' abilities. As Decety (2011) explains, human beings are an intrinsically social species. Since we are an intrinsically social species, it makes sense that neurobiological mechanisms have developed to understand and respond to the internal states of others.

For a more comprehensive understanding of human empathy the various layers of empathy should be taken into consideration – the affective, cognitive, and self-regulation processes involved in regulating affective states generated by empathic processes. In light of this, in the typically developing child and young adolescent, affective empathy should be innate, and therefore not be reduced or deficient to a point of pathology. While there are individuals who present with reduced/deficient affective empathy, as seen in those who present with callous and unemotional personality traits, this is not expected to occur at high rates in the typically developing population. Furthermore, the higher-order components of empathy, namely cognitive and affect regulation, rely on brain maturation, particularly on the development of the prefrontal cortex (Zelazo, Carlson, & Kesek, 2008). For example, theory of mind (one measure of Cognitive Empathy) begins to develop around the age of 2 years where children begin to talk about their mental states and desires (Wellman & Woolley, 1990). At this point children also begin to show an understanding of other peoples' desires. Children then go on to begin to understand their own and others' false beliefs as well as the difference between appearance and reality (3-5 years) (Bibby & McDonald, 2005; Naito, Komatsu, & Fuke, 1994). These skills continue to progress into adolescence (see e.g., Ackerman, 1981; Baron-Cohen, O'Riordan, Stone, Jones, & Plaisted, 1999; Brüne & Brüne-Cohrs, 2006; Perner & Wimmer, 1985), and while further investigation is necessary, they are likely to continue to develop throughout the lifespan. In terms of affect regulation, self-regulation skills also develop from as early as infancy and continue to do so through childhood and into adulthood (see Baumeister, 1996; Röll et al., 2012; Zimmer-Gembeck & Skinner, 2009). It follows that typically developing young children present with less developed cognitive empathy and regulation skills, while this is less likely to be the case for young adolescents. However, importantly, these higher-order aspects of empathy as conceptualised here are also subject to learning, and learning depends on context. It is also

therefore possible that some typically developing young adolescents present with less developed cognitive empathy and regulation skills as a result of learning. Given all this, the relationship between empathy and aggressive behaviour is likely to differ across age.

The Relationship Between Empathy and Aggressive Behaviour[4]

A substantial body of research in developed countries has identified empathy as an important correlate of aggressive behaviour in young people. By and large, empathy has been positively associated with prosocial behaviour (Eisenberg & Miller, 1987; Eggum et al., 2011; Eisenberg, Eggum, & di Giunta, 2010; Strayer & Roberts, 2004), while deficits in empathy have largely been associated with aggressive, delinquent, conduct disordered, and antisocial behaviour (de Kemp et al., 2007; Joliffe & Farrington, 2004, 2007; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; Van Langen et al., 2014). These research findings along with numerous others over the years have promoted the notion that empathy inhibits aggressive behaviour.

This notion that empathy inhibits aggressive behaviour is, however, challenged by the literature. For one, in a recent meta-analysis of adult samples, Vachon and colleagues (2013) discuss the 'surprising' possibility of a non-relation between empathy and aggressive behaviour. Moreover, the child and adolescent literature is also plagued by a persistent inconsistency in findings (Cohen & Strayer, 1996; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; Strayer & Roberts, 2004). For example, in their review of the four studies which had to date investigated the relationship between empathy and aggressive behaviour in children, Lovett and Sheffield (2007) highlight that two of these studies found no relationship between empathy and aggressive behaviour (i.e., Gonzalez, Field, Lasko, LaGreca, &Lahey, 1996; MacQuiddy, Maise, Hamilton, 1987), one found a significant negative relationship (i.e., de Wied et al., 2005), and the fourth one found a negative relationship in 3 of their 6 groups of participants (i.e., Bryant, 1982). These mixed findings were evident despite the fact that these four studies used the same measure of empathy, and demographic differences across studies could not explain mixed findings.

Furthermore, given the distinction between affective and cognitive empathy, it is also reasonable to suspect that deficits in specific components of empathy could partially account for the inconsistent associations between empathy and aggressive behaviour. However,

[4] Note that this section reviews the literature on the relationship between empathy and aggressive behaviour in child and adolescent samples. Only review articles which included child and adolescent samples were included, unless otherwise stated.

studies distinguishing between affective and cognitive empathy have also produced mixed findings. To illustrate, some have found that deficits in both affective and cognitive empathy are associated with aggressive behaviour and violence (Cohen & Strayer, 1996; Joliffe & Farrington, 2004, 2007). Others have found deficits in affective empathy to be more strongly associated with aggressive behaviour than deficits in cognitive empathy (de Wied et al., 2005; Shechtman, 2002). Sutton, Smith, and Swettenham (1999) further suggest that aggressive individuals are likely to have deficits in affective empathy, but superior cognitive empathy. In contrast, a recent meta-analysis by Van Langen and colleagues (2014) presents findings indicating that reduced cognitive empathy is more strongly associated with offending, and that the relationship between affective empathy and aggressive behaviour requires further exploration. Then there are also findings that deficits in cognitive empathy and overall empathy are associated with increased behavioural problems in boys and girls (Dadds et al., 2008), and to further complicate matters, contrary to the underlying assumption that empathy inhibits aggressive behaviour, there is also evidence that increased affective empathy may be associated with increased behavioural and emotional problems in girls (Dadds et al., 2008).

Several explanations for these inconsistencies come to mind, some of which are yet to be discussed. Firstly, inconsistent and inadequate conceptualisations of empathy (discussed earlier in Chapter Two) and the use of broad definitions of aggressive behaviour (see *Defining Aggression*, Chapter One) make it difficult to draw meaningful conclusions from studies and to compare findings across studies. Next, the importance of taking context into account is erroneously underemphasized in this body of literature (see Chapter Four; Joliffe & Farrington, 2004). Given that behaviour is context-specific, a more nuanced understanding of the relationship between empathy and aggressive behaviour requires the concurrent investigation of the role of contextual factors. Additionally, this body of literature is fraught with measurement issues (to be discussed shortly). Reliable and valid measures of empathy are hard to come by. Consequently, measurement error has undermined findings. Lastly, the relationship between empathy and aggressive behaviour in children and adolescents has predominantly been investigated in a variety of clinical samples (e.g., conduct disordered, delinquent, incarcerated, antisocial), which limits our understanding of the relationship between empathy and aggressive behaviour (see *Sample Choice*, Chapter One). For one, our understanding of the relationship in typically developing samples is very limited. Furthermore, recruitment of predominantly clinical samples has resulted in the neglect of

child samples, further limiting our understanding. Addressing these theoretical and methodological issues in this body of literature is likely to result in more consistent findings.

The nature of the samples employed has in a sense obscured our understanding of the relationship between empathy and aggressive behaviour. To elaborate, empathy appears to contribute to aggressive behaviour differently depending on the sample under investigation. For example, deficient affective empathy has consistently been associated with a severe and violent pattern of aggressive and antisocial behaviour in samples high on Callous-Unemotional (CU) traits (Frick et al., 2003, 2005; Frick & White, 2008) while affective empathy appears to be positively associated with increased aggressive behaviour in typically developing samples (Dadds et al., 2008). Secondly, the nature of the sample can also explain differences in significance of empathy across studies. For example, affective empathy appears to be more consistently associated with aggressive behaviour in adolescent samples than in child samples (Lovett & Sheffield, 2007). Additionally, as the incarceration process has multiple psychological impacts and can therefore influence empathy, it is difficult to establish the directionality of the relationship between empathy and aggressive behaviour in incarcerated samples (Grounds & Jamieson, 2003; Joliffe & Farrington, 2007; Joliffe & Murray, 2012; Lovett & Sheffield, 2007; Van der Helm et al., 2012). The relationship between empathy and aggressive behaviour is somewhat dependent on the sample under investigation.

At this point I would like to point out that it is very difficult to separate findings for children versus adolescents, to track how the association between empathy components and aggression manifests across development. The main reason for this is because what is meant by 'child' and 'adolescent' has differed across studies. For example, while Lovett and Sheffield (2007) use 13 as a starting point for adolescence, de Wied and colleagues (2010) in their review of empathy dysfunction in disruptive behaviour disorder employ the DSM-IV-TR guidelines, where conduct problems prior to the age of 10 years is considered childhood-onset. Consequently, what can be said is that a relationship between empathy (whether it be affective or cognitive empathy) and aggressive behaviours has more consistently been found in older samples, particularly in individuals above the age of 13 years. The direction of these relationships has also tended to be negative in older samples, but it is important to remember that these samples have often presented with clinically significant aggression. In younger samples findings have been relatively inconsistent. While some have found no relationship, there has also been some indication that empathy may be positively associated with increased aggression. This general pattern can be explained by the nature of empathy development. As

discussed briefly earlier, the affective empathy response, if not adequately down-regulated, could lead to a scenario of 'empathic over-arousal' (Eisenberg, 2000). This in turn increases the likelihood of aggressive behaviour. Therefore, where self-regulation of affective states is inadequate (for whatever reason), affective empathy could be associated with a greater likelihood of aggressive behaviour.

Despite these inconsistencies, the volume of support across decades of literature strongly suggests that it is likely that empathy and aggressive behaviour are related. Vachon and colleagues (2013) admit, after initially proposing that empathy is possibly not related to aggressive behaviour in adults, that the assumptions we have regarding the relationship between empathy and aggression "may not be misguided after all" (p.18). Our understanding of this relationship, however, needs refining. For now, given the available literature we have to work with, it appears that it is likely that aggressive behaviour can be negatively associated with affective and cognitive empathy, and also positively associated with affective and cognitive empathy in some instances. Specifically, in typically developing samples, findings should likely reflect that of Dadds and colleagues (2008) who found that aggressive behaviour was negatively associated with cognitive empathy and in girls it was positively associated with affective empathy (also see Miller & Eisenberg, 1988). In contrast, in clinical samples or samples where increased levels of aggressive behaviour are expected, deficient affective and/or cognitive empathy could correlate with increased aggressive behaviour. In addition to this, despite mixed findings, Lovett and Sheffield (2007) have identified a trend in the literature (clinical samples) whereby cognitive empathy has been more consistently negatively associated with aggressive behaviour in adolescent samples than in child samples. Given all this, it is clear that further research is necessary to refine our understanding in both typical and clinical samples, as well as across age.

Empathy and aggressive behaviour in South Africa. In his book on gang violence in Cape Town (South Africa), Pinnock (2016) cites empathy as an important factor to take into account in explanations of aggressive and violent behaviour in young people. However, as previously highlighted, only one published study has investigated the relationship between empathy and aggressive behaviour in South Africa to date (i.e., Malcolm-Smith et al., 2015). This study investigated empathy and its association with aggression in 65 typically developing young Western Cape children (aged 6-8 years) from a lower middle SES background. Contrary to expectations, findings from this study suggested that child measures of empathy were not associated with aggressive behaviour. Furthermore, the well-established Griffith's Empathy Measure (Dadds et al., 2008) did not perform well psychometrically.

Consequently, the association between dispositional empathy and aggressive behaviour could not be examined in this study. Malcolm-Smith and colleagues did, however, find CU traits to be associated with aggressive behaviour. Since research has indicated that those high on CU traits are deficient in affective empathy (Mullins-Nelson, Salekin, & Leistico, 2006), this finding could be interpreted as suggesting a negative relationship between affective empathy and aggressive behaviour. Regardless, Malcolm-Smith and colleagues (2015) conclude that further investigation of the role of empathy in the development of aggressive and antisocial behaviour in South Africa is necessary, and that this investigation requires the identification and subsequent use of appropriate reliable and valid measures for this context.

Measuring empathy and its relation to aggressive behaviour. Decades of research have been hampered by measurement issues. The need for the development of measures which are standardized, consistently employed, and reliable has been stressed (Dadds et al., 2008; Piotrowska et al., 2015). While measures of aggressive behaviour have become more standardized and reliable over the years (Lovett & Sheffield, 2007), this is not the case for empathy. Malcolm-Smith and colleagues' (2015) findings are a case in point: The measures of dispositional empathy and aggressive behaviour employed in this South African study have not yet been formally validated for the South African context. The measure employed for aggressive behaviour (i.e., the externalising subscale of the Child Behaviour Checklist; Achenbach & Rescorla, 2001) performed well psychometrically, and has done so in previous studies in South Africa (as well as internationally). In contrast, the Griffith's Empathy Measure (Dadds et al., 2008), considered a reliable and valid measure of dispositional empathy in an Australian sample of children and adolescents, performed poorly in this South African sample. This was likely due to respondents from lower socioeconomic backgrounds who struggled with the complex 9 point response format of this questionnaire. Additionally, given the multidimensional nature of empathy and inconsistent and inadequate definitions, numerous measures have been developed and employed. Standardized and reliable measures of empathy, which are consistently employed, are therefore hard to come by (Dadds et al., 2008).

Aside from the need to develop and use more reliable and valid measures, a multi-method, multiple informant approach is encouraged to more accurately and comprehensively measure behaviour (Dadds et al., 2008; Joliffe & Farington, 2004; Lovett & Sheffield, 2007; MacGowan, 1999). Employing multiple measures of empathy has been encouraged (Schaffer et al., 2009). To elaborate, investigation of empathy is likely to benefit from measurement at the level of the various components (i.e., cognitive, affective, and affect regulation). Schaffer

and colleagues (2009) furthermore argue that the most accurate data would be obtained from multiple measures of each component of empathy – a rare practice in this body of literature.

Overall, the methods employed to investigate the relationship between empathy and aggressive behaviour have not been theoretically satisfying (Decety, 2011; Lovett & Sheffield, 2007). These methods have been influenced greatly by the different conceptualisations of empathy and broad definitions of aggressive behaviour, and have therefore varied considerably. This variability has become problematic. To illustrate, several review articles have found that the mode of assessment (i.e., measurement instrument/tool) moderates the relationship between empathy and aggressive behaviour (Eisenberg & Miller, 1987; Joliffe & Farington, 2004; Miller & Eisenberg, 1988; Van Langen et al. 2014). As a result, a more careful conceptualisation of empathy is called for (Decety, 2011; Mar, 2011; discussed earlier in Chapter Two), and the employment of a narrow and theoretically relevant operational definition of aggressive behaviour is encouraged (see Chapter One, *Defining Aggressive Behaviour*). Addressing these theoretical issues will play an important part in more accurate measurement of the relationship between empathy and aggressive behaviour.

To summarize, Chapter Two started with a review of how empathy has been conceptualised to date. I presented evidence to demonstrate that empathy is not a unitary construct, and is therefore best not investigated as such. I furthermore drew attention to the value of merging neurobiological and behavioural approaches to understanding the relationship between empathy and behaviour. To elaborate, neurobiological research stresses that empathy is something that needs to be regulated. As a result, this approach posits that the relationship between empathy and behaviour should include investigation of the role of self-regulation, particularly processes of affect regulation. Behavioural research stresses the importance of taking context into account when investigating correlates of behaviour. Consequently, I proposed that the relationship between empathy and aggressive behaviour is likely to be more accurately investigated if (1) empathy is conceptualised as arising from affective, cognitive and self-regulation processes of affect regulation, and (2) the role of empathy is investigated while concurrently investigating the role of factors situated at all levels of the individual's behavioural context (i.e., ecosystem of contexts), both internal and external to the individual.

I also presented evidence supporting a relationship between empathy and aggressive behaviour. In doing so, inconsistencies in the literature were highlighted and attention was drawn to theoretical and methodological explanations for these inconsistencies. Next, I

briefly discussed the one study which has to date investigated this relationship in a South African context, at which point attention was drawn to the need for using reliable and valid measures of empathy. I then discussed measurement issues that have risen from theoretical issues and concluded by pointing out that addressing theoretical issues will play an important part in more accurate measurement of the relationship between empathy and aggressive behaviour.

To conclude, Chapter Two drew attention to the value of a conceptualisation of empathy where empathy is deconstructed into an Affective, a Cognitive, and an Affect Regulation component. Specifically, it highlighted the value of investigating the role of self-regulation – particularly the regulation of affective states – when investigating the relationship between empathy and aggressive behaviour (to be discussed in Chapter Three).

CHAPTER THREE.

AFFECT REGULATION AND ITS RELATION TO EMPATHY AND AGGRESSIVE BEHAVIOUR

In Chapter Two I proposed that the relationship between empathy and aggressive behaviour is likely to be better understood by employing Decety and colleagues' framework (see Decety, 2011; Decety & Jackson, 2004) which conceptualises empathy as comprising three components: affective, cognitive, and affect regulation. Given that empathy is something that needs to be regulated, the importance of including a regulation component in the conceptualisation of empathy, and specifically, those self-regulatory processes involved in the regulation of our affective states, is stressed (Decety, 2011). This conceptualisation draws on two largely isolated bodies of literature. The first focusses on affective and cognitive empathy in relation to aggressive behaviour (as discussed in Chapter Two), while the second focusses on self-regulation (particularly affect regulation) in relation to such behaviour (to be discussed in Chapter Three). Consequently, this conceptualisation calls for the integration of two vast bodies of literature, the latter of which is the primary focus of Chapter Three.

There is ample evidence to link poor self-regulation with a wide array of behaviours which can be harmful to both the self and/or others, including aggression and violence (Aldao, Nolen-Hoeksema, & Schwizer, 2010; Baumeister & Heatherton, 1996; Koole, 2009; Roberton, Daffern, & Bucks, 2012; Röll, Koglin, & Peterman, 2012). Moreover, poor emotion and affect regulation and aggressive behaviour have also been connected, in both children and adolescents (Penney & Moretti, 2010; Röll et al., 2012). It follows that self-regulatory processes, including those involved in regulating affective states, are an important factor to take into account when investigating the correlates of aggressive behaviour. Recent research has highlighted the association between affect regulation and empathy (Bradley, 2000; Decety, 2011; Eisenberg & Eggum, 2009; Rothbart & Bates, 2006; Posner & Rothbart, 2007). Together these findings support the argument that to better investigate the relationship between empathy and aggressive behaviour requires that one conceptualise empathy as including an affect regulation component. To reiterate what was highlighted in Chapter Two, affect regulation has a role to play in the relationship between empathy and aggressive behaviour.

Chapter Three begins with a discussion of the evidence for a relationship between self-regulation and aggressive behaviour. Given the size of this body of literature, it is not covered exhaustively. Instead, I focus on the aspect of self-regulation which has been associated with empathy: the regulation of affective states (such as emotions) and its relation to aggressive behaviour. Furthermore, as will become clear, the South African literature on this topic is lacking. I then briefly discuss emotion/affect regulation and its relation to both empathy and aggressive behaviour. I conclude Chapter Three by pointing out that behaviour is not only regulated by the self, but also by factors external to the self (to be further discussed in Chapter Four).

The Relationship Between Self-Regulation and Aggressive Behaviour

Defining self-regulation. Self-regulation encompasses an array of internal processes loosely described as those internal processes involved in managing one's behaviour, thoughts, and affect, given the context (Baumeister & Heatherton, 1996; Koole, 2009; Posner & Rothbart, 2000). Terms such as under-regulation, over-regulation, misregulation, and dysregulation are generally used to describe failure of, or poor self-regulation. To illustrate, under-regulation reflects a failure to exert self-control. For example, if one does not contain one's emotions sufficiently (i.e., if you are overwhelmed by emotion), it can be difficult to engage in goal-directed behaviour or inhibit your impulses. Over-regulation, on the other hand, occurs when we stop an emotional experience from unfolding (i.e., when emotions are changed too quickly for the context) (Roberton et al., 2012). The term misregulation refers to exerting self-control in a misguided or counter-productive way, and encompasses processes that are either over- or under-regulated (Baumeister & Heatherton, 1996). Finally, the term dysregulation, most commonly used throughout the literature, describes all self-regulatory processes that are inadequate at altering one's responses to suit the context (see Aldao et al., 2010 for a discussion), and in a sense can therefore be considered maladaptive.

The development of self-regulation. The ability to self-regulate is a crucial skill of considerable value, and is considered an important and distinctively human trait (Baumeister & Heatherton, 1996). Self-regulation skills develop from as early as infancy and continue to do so through childhood and into adulthood (for reviews see Baumeister & Heatherton, 1996; Posner & Rothbart, 2000; Röll et al., 2012; Zimmer-Gembeck & Skinner, 2009). In fact, self-regulation skills such as emotion regulation may continue to develop into old age (Carstensen, Fung, & Charles, 2003; Cole, 2014). Furthermore, these skills are facilitated by top-down brain processes, and are therefore subject to learning. Consequently, they are made

possible by brain maturation processes but are also facilitated by socialization processes, such as social learning (Butler, Lee, & Gross, 2007; Cole, 2014; Cole, Martin, & Dennis, 2004). As the brain matures it lays the neurological foundation for the acquisition of self-regulation skills. Interactions with social agents such as caregivers then assist with the acquisition of self-regulation skills, thereby playing a vital role in the learning process. For example, attachment figures promote the development of self-regulation skills via helping an infant to manage negative emotions (Eisenberg & Eggum, 2009; Tucker, Luu, & Derryberry, 2005). Given all this, we also expect to see a pattern whereby behaviour is initially predominantly regulated by external sources such as caregivers. Brain maturation then facilitates the shift to increased reliance on regulation by the self. For example, infants rely very heavily on their caregivers to regulate their emotions and slowly learn how to self-regulate. Essentially, as the brain matures it allows for learning to take place, which in turn results in less reliance on others to regulate behaviour. Consequently then, self-regulatory strategies are acquired/learnt (i.e., they are not innate).

Maladaptive self-regulation can cause considerable suffering to individuals in their everyday life (e.g., eating binges, substance abuse, anxiety; Aldao et al., 2010; Fischer & Munsch, 2012). Moreover, it can also impact greatly on society through its association with increased aggression and violence (Granic, Meusel, Lamm, Woltering, & Lewis, 2012; Roberton et al., 2012; Röll et al., 2012). Furthermore, given the manner in which self-regulation skills develop, it is not unusual to find that younger individuals struggle to control their aggressive impulses. For example, Eisenberg and colleagues (Eisenberg et al., 1996, 2000) consistently demonstrate a relationship between poor self-regulation and externalising behaviour problems in school-aged children. These younger children are still learning how to self-regulate (i.e., acquiring self-regulation skills), and are therefore at greater risk for developing externalising behaviour problems than their older counterparts. As such, younger typically developing children are more likely to present with reduced ability to self-regulate than their older counterparts. However, given that self-regulation skills are also learnt, their older counterparts could also present with reduced self-regulation skills and/or the use of maladaptive self-regulation strategies. As Bradley (2000) points out, a crucial aspect of adaptation in early childhood is to learn how to adaptively regulate our impulses, both affective and behavioural.

Emotion/affect regulation and aggressive behaviour. The ability to regulate one's emotions, for one, is a key developmental achievement in early childhood (Kopp, 1989). To

illustrate, maladaptive emotion regulation (often also referred to as affect regulation[5]) has been implicated in the development of aggressive behaviour in both children and adolescents (Penney & Moretti, 2010; see Röll et al., 2012 for a review). This is not surprising given that emotion is often a key factor in motivating behaviour (Cole et al., 2004). In fact, Cole and colleagues (2004) assert that "any psychological account of child development is incomplete without understanding the importance of emotions as motivators" (p. 318). Emotions infuse our experiences with meaning, thereby motivating our behaviour. It follows that the strategies employed to regulate emotions influence behaviour.

In keeping with this, social psychologists emphasize the role that emotion plays in aggressive behaviour, and particularly the role of negative emotions such as anger (Davidson, Putnam, & Larson, 2000; Lewis, Lamm, Segalowitz, Stieben, & Zelazo, 2006; Penney & Moretti, 2010; Sullivan, Helms, Kliever, & Goodman, 2010). One way in which emotion motivates aggressive behaviour is by increasing the salience of what has caused the emotion to arise. This in turn directs attention at the stimulus, thereby making self-regulation difficult (Baumeister & Heatherton, 1996). For example, experiencing anger directs attention at the stimulus causing this anger, binding attention to the immediate situation. This in turn makes the ability to restrain or transcend one's impulses more difficult. Moreover, emotions can influence behaviour even if the source of emotion is not in the near vicinity, but is highly available in memory, thus illustrating how powerful a motivator emotion can be. Additionally, while the role of anger in promoting aggressive behaviour has been a focus of this body of literature, it is worthwhile noting that some emotions such as guilt, for example, can also influence our behaviour directly to encourage self-control and consequently prevent aggressive behaviour (Baumeister. 1995). The value of *adaptive* emotion regulation is therefore apparent.

Defining emotion and affect regulation. Unfortunately, the definition of emotion regulation suffers from conceptual and methodological diversity, is poorly defined, and lacks clarity (Cole et al., 2004; Russell, 2003). As mentioned earlier, it is at times also used interchangeably with affect regulation. This makes sense given that constructs such as affect regulation, mood regulation, and coping with stress are closely related to the construct of emotion regulation (Koole et al., 2009). While these constructs overlap considerably, they can be distinguished from one another semantically. To elaborate, they are all concerned with processes involving core affective states. In other words, they are all concerned with

[5] Note that while these two terms are sometimes used interchangeably, they do not mean the same thing, as will be clarified shortly.

processes that assist in changing basic feeling states of good and bad, or energized and enervated (Russel, 2003). These include emotional states, mood states, as well as feeling states associated with stress. Consequently, emotion regulation should be considered subordinate to affect regulation (i.e., an aspect of affect regulation). However, while these terms do not represent exactly the same processes, they both tap into the processes involved in regulating core affect. To some degree then, terms such as emotion regulation and affect regulation can be used interchangeably.

Extending the definition employed for self-regulation earlier, affect regulation encompasses an array of internal processes that can be loosely described as those processes involved in managing one's affective states (such as one's emotions) given the context. More specifically, affect regulation is concerned with the psychological and physiological processes that amplify, attenuate, and/or maintain an affective state (Davidson et al., 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000). Importantly, affect regulation processes do not include the processes that give rise to these states; these processes occur independently from the activation of affective states (Cole et al., 2004). As such, both the processes that give rise to affective states as well as the processes which regulate these states play an important role in behaviour. However, while these processes cannot be directly compared in terms of explanatory value, it makes logical sense that the ability to adaptively regulate one's affective state is valuable.

One way of investigating affect regulation is by turning our attention towards the strategies people generally employ to regulate their affective states. These strategies are not inherently adaptive or maladaptive, but can be described as such in particular circumstances. To clarify, affect regulation is defined by the context within which it occurs. Adaptive regulation refers to those strategies which facilitate successful functioning within the context (Bridges, Denham, & Ganiban, 2004), while maladaptive strategies refer to those strategies that prevent the individual from dealing with his/her affective state sufficiently (Roberton et al., 2010). The value of the strategies employed is therefore determined by outcome given the context. Furthermore, several distinct affect regulation strategies have been identified to date (see Gross & John, 2003; Roberton et al., 2012). Some of these are generally considered adaptive (such as cognitive reappraisal), while others are generally described as maladaptive (such as suppression). All strategies, however, even the maladaptive ones, can be beneficial in certain contexts, but become problematic when they are applied inflexibly. The flexible use of a range of affect regulation strategies across contexts is ideal (Bonanno, Papa Lalande, Westphal, & Coifman, 2004).

Emotion/affect dysregulation and aggressive behaviour. Poor self-regulation has long been implicated in problematic behaviours (Aldao et al., 2010; Baumeister & Heatherton, 1996; Koole, 2009; Roberton et al., 2012; Röll et al., 2012). To illustrate, emotion dysregulation has repeatedly been linked to aggressive and violent behaviour; numerous studies have demonstrated its relationship with increased externalising behaviour problems from as early as infancy and throughout childhood and adolescence (Dearing et al, 2002; Izard et al., 2008; Lewis, Granic, & Lamm, 2006; Mullin & Hinshaw, 2007; Penney & Moretti, 2010; Röll et al., 2012, Roberton et al., 2012). De Castro, Merk, Koops, Veerman, and Bosch (2005) demonstrated that children with dysregulated affect showed increased externalizing behaviour problems such as aggression and delinquency, and also exhibited lower levels of prosocial behaviour. For example, when asked about the affect regulation strategies they employ, boys who were referred for problems with aggression revealed that they employed strategies such as distraction or further aggression in response to negative affect. Not only were the strategies they employed less effective than their non-aggressive counterparts' strategies, but they were also less likely than their non-aggressive counterparts to identify any emotion regulation strategy. Consequently, emotion/affect dysregulation is considered a salient risk factor for aggression among infants, children, and adolescents (Frick & Morris, 2004; Izard et al., 2008; Mullin & Hinshaw, 2007; Penney & Moretti, 2010; Röll et al., 2012). The role of affect and the ability to regulate affective states has been emphasized in developmental approaches to understanding behavioural disorders (Penney & Moretti, 2010).

Emotion/affect dysregulation and aggressive behaviour in South Africa. In South Africa, the literature on this topic is very thin; a search of the literature yielded one published study. There is, however, no reason to expect that emotion/affect dysregulation would not be associated with aggressive behaviour in South Africa. This is because behaviour is something that needs to be regulated. Moreover, emotions play an important role in motivating behaviour in all typically developing individuals. It follows that emotion regulation strategies should be associated with aggressive behaviour, as has been demonstrated in international findings discussed above. In keeping with this expectation, Bozicivic and colleagues (2016) investigated the impact of early maternal parenting on infant emotion regulation strategies in one UK sample and two South African samples. They demonstrated that across these three cultures, maternal parenting differed, which in turn was associated with infant aggressive behaviour. Findings indicated that infants in the UK sample were least likely to behave aggressively, while infants in one of the South African samples were most likely to behave

aggressively. Additionally, in keeping with international findings, infants who used active emotion regulation strategies (associated with sensitive parenting) were less likely to exhibit aggression (UK and one South African sample), while those who used passive emotion regulation strategies (associated with dismissive parenting) were more likely to exhibit aggression (one South African sample). What this suggests is that the relationship between emotion regulation and aggressive behaviour may not differ in South African samples, but that the underlying mechanisms (e.g., parenting) result in differences in prevalence of maladaptive emotion regulation. If we assume that certain South African subcultures are more at risk for maladaptive emotion regulation as a result of cultural differences, emotion regulation may well be a more salient correlate of aggressive behaviour in certain South African communities.

Affect Regulation, Empathy, and Aggressive Behaviour

In Chapter Two I stressed the importance of including an affect regulation component in the conceptualisation of empathy in this dissertation, and specifically, those self-regulatory processes involved in the regulation of our affective states. Traditionally, however, scholars have considered the respective relationships between affect regulation and aggressive behaviour and empathy and aggressive behaviour separately, which has given rise to two relatively isolated bodies of literature. As illustrated thusfar (in Chapters Two and Three), maladaptive self-regulation strategies – pertaining to emotion/affect regulation in specific – and deficient empathy have both been associated with increased aggressive behaviour. These two bodies of literature are not, however, conceptually unconnected. To elaborate, the relationship between self-regulation and empathy has been afforded some attention in recent years (Bradley, 2000; Decety, 2011; Eisenberg & Eggum, 2009; Rothbart & Bates, 2006; Posner & Rothbart, 2007; Schipper & Peterman, 2013; van der Merwe & Dawes, 2000). This connection between self-regulation and empathy makes logical sense given that processes that rely on skills of emotion awareness and emotion understanding (such as empathy, for example) should be closely related to the processes that regulate these states (such as emotion/affect regulation), and is furthermore grounded in recent research findings. Consequently, re-evaluation of the value of investigating these two bodies of literature separately, as is convention, may well prove fruitful.

While some argue for the merger of these two bodies of literature, others assert that they should be considered separately. As discussed in Chapter Two, Decety and colleagues (see Decety, 2011; Decety & Jackson, 2004), for example, propose a neurobiological

framework that posits that empathic behaviour (i.e., the behavioural expression of empathy) arises from the interaction between brain processes underlying affective empathy (emotion awareness), cognitive empathy (emotion understanding), and how affective states are regulated (affect regulation). While affect regulation is not specific to empathy, it is considered important to include when investigating empathy in relation to behaviour. Schipper and Peterman (2013), on the other hand, maintain that these processes should be considered separately. They point out that emotion awareness and understanding (i.e., empathy) develop before the processes that regulate emotion, and suggest a linear relationship between these two in that empathy deficits trigger emotion dysregulation. While I agree that the processes generating affective states are separate from the processes that regulate them, behaviour does not always reflect ability. This is because both the processes that generate affective states and the processes that regulate them play a role in behaviour. Consequently, an argument can be made that an ecologically valid understanding of the relationship between empathy and aggressive behaviour will likely come from investigating the role of empathy while concurrently investigating the processes that regulate empathy (such as affect regulation).

To conclude, it is important to note that behaviour is not only regulated by internal processes of self-regulation, but also by other factors internal and external to the self (to be further discussed in Chapter Four). As discussed in Chapter One, behaviour is embedded in context. Factors situated within the child's ecosystem of contexts can be associated with self-regulation directly (e.g., attachment, parenting), but can also serve as regulators of behaviour. To illustrate, a child may not be deficient in affective or cognitive empathy, and may also generally employ adaptive self-regulatory strategies. However, given some other factor (such as Gender or SES, for examples), the child may not behaviourally express empathy. Behaviour is a multilevel phenomenon best understood by concurrently considering the multiple internal and external regulators thereof.

To summarize, the overarching goal of Chapter Three was to illustrate the role that self-regulation – particularly emotion/affect regulation – plays in the expression of aggressive behaviour. To do so, I presented evidence supporting a relationship between maladaptive emotion/affect regulation and increased aggressive behaviour. The need for further investigation of this relationship in South Africa became apparent. Next, I discussed the relations between self-regulation, empathy, and aggressive behaviour, with specific focus on the relationship between emotion/affect regulation and empathy. In doing so, I drew attention

to the usefulness of conceptualising empathy as comprising an affective, a cognitive, and a affect regulation component. I furthermore drew attention to the fact that behaviour is something that needs to be regulated, and that it is not only regulated by the self, but also by factors external to the self (to be discussed further in Chapter Four). I concluded by arguing that a more ecologically valid understanding of the correlates of aggressive behaviour, and the role of empathy specifically, requires a conceptualisation of empathy that takes affect regulation into account while concurrently investigating the contextual factors that regulate them, both internally and externally.

CHAPTER FOUR.
OTHER CONTEXTUAL FACTORS ASSOCIATED WITH AGGRESSIVE BEHAVIOUR

Behaviour is something that is regulated – by the individual's internal context as well as his/her external contexts (i.e., ecosystem of contexts). Aside from empathy and self-regulation, numerous other factors have been identified as important correlates of aggressive behaviour. These include factors situated within each level of the child's ecosystem of contexts such as age and gender (i.e., individual characteristics), parenting style and parent empathy (i.e., every day contexts), as well as socioeconomic status (i.e., broader societal and community contexts) (Hoeve et al., 2009; Joliffe & Farrington, 2004, 2007; Piotrowska et al., 2015; van Langen et al., 2014). Additionally, the overarching values, customs, culture, and laws (i.e., the macrosystem) are also associated with behaviour. The factors within these contexts furthermore interact with one another, increasing the complexity of an already complex set of relationships (Dawes & Donald, 2000; Letourneau et al., 2011; Piotrowska et al., 2015). In keeping with Ecological Systems Theory, a more refined understanding of the relationship between empathy and aggressive behaviour requires that the concurrent roles of other factors situated in the individual's internal as well as external contexts be taken into account.

Chapter Four starts with a very brief recap of Ecological Systems Theory. I then discuss several factors known to be associated with aggressive behaviour. While including all possible factors would be ideal, it is also impractical. I therefore considered several associated factors which have also been connected to empathy. I begin by discussing the role of individual characteristics (age and gender) followed by three parent correlates of child development and behaviour (parenting style, parent empathy, and child attachment style[6]). I subsequently discuss SES and its associations with child development and subsequent behaviour – a very important broader societal correlate in South Africa. A brief word on macrosystemic correlates is then warranted. Associations with empathy are highlighted throughout. Note that, unless otherwise stated, the literature discussed stems from studies conducted outside of South Africa. Furthermore, as in the case of the relationship between empathy and aggressive behaviour, it is not easy to separate findings for children versus adolescents, thus preventing a nuanced account of the development of the respective

[6] Note that child attachment style is an internal context factor (i.e., individual characteristic) but given the important part parents/caregivers play in child attachment, it is classified as a parent contribution in this dissertation.

relationships between the factors discussed and aggressive behaviour. However, as will become evident, differences across development are to be expected.

Factors Associated with Aggressive Behaviour: An EST Approach

To recap, Ecological Systems Theory (EST) posits that children grow up in an ecosystem of contexts, and that child development and behaviour is consequently better understood bearing this in mind (Bronfenbrenner, 1979; Ward, 2007a; see Figure 3). At the heart of EST we find the individual context – those characteristics which are part of the child. The individual is then situated within the everyday contexts – those contexts the child is exposed to on a daily basis (i.e., the microsystem). These in turn lie within the broader societal and community contexts – those contexts which are indirectly associated with the individual's development and behaviour (i.e., the exosystem). All of these contexts are then situated within an overarching context informed by values, culture, customs, and laws (i.e., the macrosystem). This framework also stresses that the factors within these contexts contribute to development and behaviour differentially across age (i.e., the chronosystem).

Within each of these levels of context we find factors which are associated with child development and consequent behaviour. These factors can be described as internal (i.e., individual context factors) versus external to the individual. Furthermore, depending on the context, each factor serves as either a protective factor (i.e., decreases the likelihood of future problematic behaviour) or a risk factor (i.e., increases the likelihood of future problematic behaviour). Protective and risk factors interact with one another within and across contextual levels – it is therefore better not to interpret their relationships with behaviour in isolation from one another. Furthermore, these factors are differentially associated with child development and behaviour across time; they play a role in child behaviour, which plays a role in how the environment responds to the child. This in turn contributes to child development and behaviour. Child development is therefore transactional in nature and child behaviour is reciprocally determined (Grusec, 1992; Koschanska & Kim, 2010; Sameroff, 1975).

In keeping with EST, several factors situated within this ecology of contexts have been identified as important correlates of aggressive behaviour and a number of these have also been associated with empathy (see Figure 3). These include age and gender (individual context), parent contributions such as parent empathy, parenting style, and attachment style (everyday contexts), and SES (broader societal and community context). Additionally, the variability in overarching values, customs, culture, and laws are also expected to be

associated with aggressive behaviour. The socialisation of youth into violent lifestyles (i.e., a culture of violence) is one such example (Garabarino, 1999). An more ecologically valid investigation of the correlates of aggressive behaviour requires that these factors be investigated concurrently, as behaviour is embedded in context.

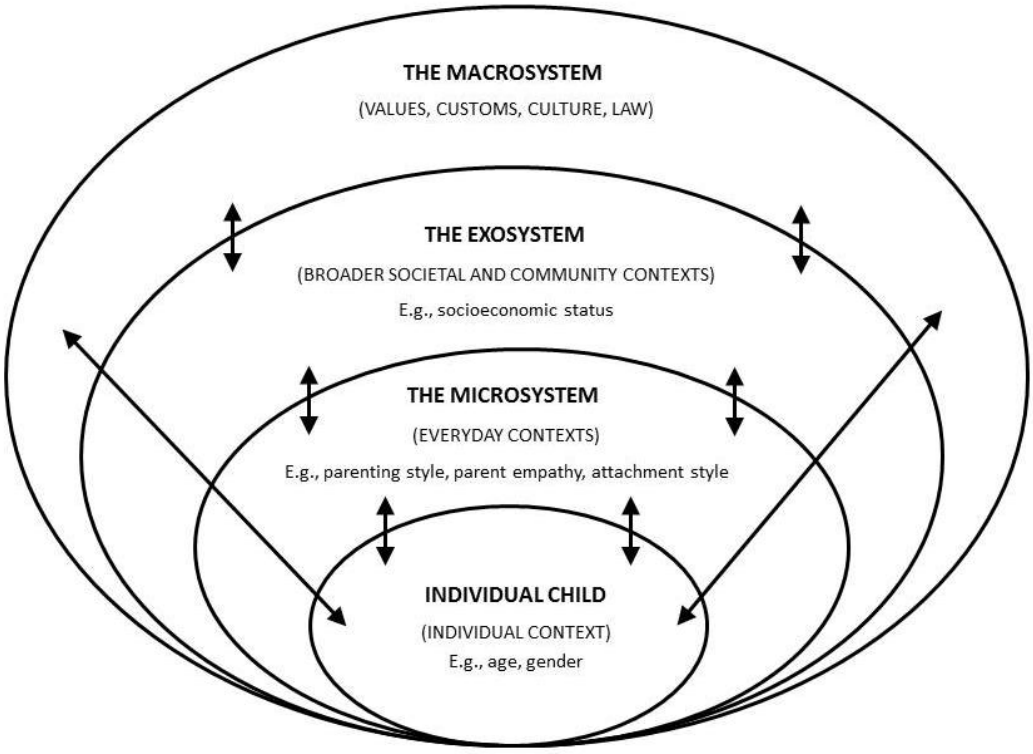

Figure 3. Ecological Systems Theory model presenting factors to be discussed in this dissertation. Note: Image adapted from "C. L. Ward et al. (2012). Violence, violence prevention, and safety: A research agenda for South Africa, *South African Medical Journal, 102*, 215-218.

Individual context. When investigating the correlates of behaviour it is important to consider those characteristics an individual brings to a context – the individual context. Individual context plays an important role in child development and behaviour. The value of the role of individual context is reflected in individuals' differential susceptibility to environmental influences (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007; de Kemp et al., 2007), and can be explained by the transactional nature of development (Sameroff, 1975). Two individual context factors, namely age and gender, are considered important factors to include when investigating the correlates of aggressive behaviour. As will be demonstrated shortly, these two factors are well-evidenced as correlates of aggressive behaviour, and are also associated with numerous other factors, such as empathy, which in turn are associated with behaviour.

Brain maturation and socialization processes are often drawn on to explain the relationships between age and aggressive behaviour and gender and aggressive behaviour. In brief, in the typically developing brain, neurocognitive development occurs as a function of age as well as of gender (Casey, Tottenham, Liston, & Durston, 2005; Christov-Moore et al., 2014, Lenroot & Giedd, 2006; Palmer, 2003; Palmer & Hollin, 1998, 2001). As the brain matures (with age) it lays the neurobiological foundation for the development of crucial adaptive skills such as working memory, attention, intellectual functioning, abstract thinking, self-regulation, as well as empathy. There is also evidence that females' brains mature more rapidly than males' brains. Furthermore, socialization processes (i.e., those processes involved in learning the rules and roles of a culture/society) also differ across age and gender (Aldao et al., 2010). The behaviours that are expected and accepted by culture/society differ across age and gender. As will be illustrated shortly, differences in brain maturation and socialization processes can explain why certain behavioural differences are evident across age and gender.

Age as a correlate of aggressive behaviour. Ecological Systems Theory stresses the role of age in child development and behaviour (Bronfenbrenner, 1979), and rightfully so. In typically developing children, for example, younger children are more likely to engage in aggressive behaviour than their older counterparts (Bongers, Koot, van der Ende, & Verhulst, 2004; Broidy et al., 2003; Cairns et al., 1989; Campbell, 1995; Tremblay, 2000; Tremblay & Côté, 2009). After physical aggression peaks in early childhood (at approximately 3.5 years), levels of physical aggression decrease as a function of age (Tremblay & Côté, 2009). This trend arises because behaviour is differentially determined across age. Different risk and protective factors come into play at different ages (Dodge et al., 2008; Loeber, Burke, & Pardini, 2009; Ward, 2015). Most risk factors for aggressive behaviour emerge during childhood years (i.e., birth to childhood) and fewer in adolescence (Loeber et al., 2009). This is in turn reflected in the decrease in aggressive behaviour seen in typically developing children as they enter adolescence.

Age, empathy, and aggressive behaviour. The trend of decreasing aggressive behaviour with increasing age can be explained, for one, by drawing on brain maturation processes. Take, for example, the relationship between age, empathy, and aggressive behaviour. As the brain matures it lays the foundation for adaptive skills including empathy. Indicators of affective empathy can be seen in early infancy and tend to remain stable across time, while cognitive empathy and affect regulation (i.e., affect regulation skills) develop and become more sophisticated with brain maturation, and are more apparent in adolescents than

in children (Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005; Hoffman, 1977; Singer, 2006). Since the higher-order skills (i.e., Cognitive Empathy and Affect Regulation) are facilitated by brain maturation, older children are more likely to have these skills at their disposal than younger children. These skills have the potential to play a role in aggressive behaviour – as is evidenced by findings demonstrating associations between affective and cognitive empathy and aggressive behaviour (albeit inconsistent) as well as poor/maladaptive affect regulation and increased aggressive behaviour (discussed in Chapters Two and Three). As can be seen, brain maturation processes associated with age can play a role in aggressive behaviour through their association with empathy development.

Socialization processes also play a role in empathy development. Specifically, the higher-order aspects of empathy (i.e., Cognitive Empathy and Affect Regulation) are subject to learning. For example, social norms and expectations of behaviour vary across age. While empathic behaviour is encouraged in most societies, the individual's age dictates what is deemed acceptable behaviour. To illustrate, while it is accepted that a toddler does not want to share a toy even when he/she knows the other toddler has no toy, this behaviour is less acceptable from an older child. Older children are encouraged to use the knowledge that the other child does not have a toy and is sad to behave in a manner that is driven by empathy for this other child. It is likely that a young child will not be reprimanded for not wanting to share in the same manner as an older child would be. Age therefore plays a role in not only how the child behaves but also how others interact with the child. In this way, the reciprocal interactions with the environment are associated with the development of higher-order empathic skills. Socialization processes associated with age can therefore play a role in aggressive behaviour through their association with the acquisition of higher-order empathic skills.

Given the associations between age and empathy, age and aggressive behaviour, and empathy and aggressive behaviour, it follows logically that empathy could moderate the relationship between age and aggressive behaviour. This has not been established in typically developing samples, but associations between age, gender, and clinically significant aggression have been demonstrated (e.g., in delinquent and antisocial samples) (Joliffe & Farrington, 2007; Letourneau et al., 2013; Lovett & Sheffield, 2007; van Langen et al., 2014). Furthermore, while our understanding of the relationship between empathy and aggressive behaviour in children and adolescents is lacking (more so in typically developing samples), there is ample evidence to indicate that aggressive behaviour is differentially determined across age, in both typically developing and clinically aggressive children and adolescents.

Age of onset of aggressive behaviour. A word on the age of onset of aggressive behaviour is warranted at this point. Firstly, age of onset is often employed to characterize the developmental trajectory of clinically significant aggressive behaviour. The age of onset of aggressive behaviour can tell us about aetiology, developmental course, as well as the prognosis (i.e., severity and chronicity) of aggressive behaviour (Barker & Maughan, 2009; Moffit, 2006; Silverthorn & Frick, 1999). For example, several developmental pathways for antisocial behaviour have been characterized in terms of age of onset such as the life-course persistent (i.e., antisocial behaviour throughout life), adolescence-limited (i.e., antisocial behaviour only in adolescence), and childhood-limited (i.e., antisocial behaviour only in childhood) pathways (Moffit, 1993; Moffit et al., 1996; Moffit et al., 2002). Furthermore, investigations of aggressive behaviour in children and adolescents in relation to callous-unemotional traits identify two developmental pathways leading to later aggressive, antisocial and/or delinquent behaviour – one with onset in early childhood, and the second beginning in early adolescence (Barry et al., 2000; Frick & White, 2008). Secondly, and moreover, early aggressive behaviour is associated with later aggression, delinquency, and violence. Age of onset should therefore be considered an important risk factor for aggressive behaviour. Consequently, it is clear that age is an important correlate of aggressive behaviour, in both typically developing and clinically aggressive individuals. The value of investigating aggressive behaviour from a developmental perspective should be clear.

***Gender as a correlate of aggressive behaviour*.** As in the case of age, behaviour is differentially determined across gender; specifically, gender has long been considered an important correlate of aggressive behaviour (and specifically, direct aggression; Card et al., 2008). In typically developing children, boys are more likely to engage in aggressive behaviour than girls (Bongers et al., 2004; Card et al., 2008; Lansford et al., 2012), and in childhood this difference is more apparent (Bongers, Koot, van der Ende, & Verhulst, 2003; Crick & Dodge, 1996; Keenan & Shaw, 1997). Furthermore, developmental trajectories of problem behaviours such as aggressive behaviour also differ across gender (Bongers et al. 2003; Lahey et al., 2000). For example, while externalising aggressive behaviour decreases with time across gender, it decreases at a much faster rate in boys than in girls (Bongers et al., 2003). In fact, Bongers and colleagues (2003) point out that the gender difference in externalising aggressive behaviour near disappears by age 18.

The difference in aggressive behaviour across gender in clinically aggressive samples, in both children and adolescents, is much more apparent (Archer, 2004; Eagly & Steffen, 1986; van Lier, Vitaro, Barker, Koot, & Tremblay, 2009). According to van Lier and

colleagues, for example, between the ages of 10 and 15 years boys are almost 20 times more likely to exhibit chronic physically aggressive behaviour. Furthermore, although some inconsistencies in research findings are evident (Archer, 2004; Eagly & Steffen, 1986), a more recent review conducted by Card and colleagues (2008) has shown that on average boys tend to exhibit more direct aggression than girls, which is also more strongly related to externalizing problems and low prosocial behaviour. As can be seen, there is ample evidence to indicate that in the case of children and adolescents, regardless of sample type, boys exhibit more aggression than girls, and particularly direct/physical aggression.

Gender, empathy, and aggressive behaviour. As with age, the increased risk for aggressive behaviour in males can partially be explained by brain maturation. The relationship between gender, empathy, and aggressive behaviour is once again used as example. While the literature regarding gender differences in brain development is lacking, numerous studies support the argument that neurocognitive development occurs as a function of gender (Christov-Moore et al., 2014; Lenroot & Giedd, 2006). In specific, a stable pattern of higher empathy for females is apparent in neonates, and is furthermore seen in toddlers, children, adolescents, and adults (Christov-Moore et al., 2014; Cohen & Strayer, 2006; Eisenberg & Lennon, 1983; Garaigordobil, 2009; Hoffman, 1977; Macaskill, Maltby, & Day, 2002; Rueckert, Branch, & Doan, 2011; Schieman & van Gundy, 2000). Furthermore, a recent review of the literature by Chirstov-Moore and colleagues (2014) reveals a female advantage for affective empathy, while the difference across gender is less for cognitive empathy, and has also been less often investigated. Consequently, an argument can be made that girls are more likely to have these empathic skills at their disposal than boys, particularly at a younger age. These skills, in turn, have the potential to play a role in aggressive behaviour. Specifically, they serve as a protective factor against aggressive behaviour in females. Brain maturation processes associated with gender can therefore play a role in aggressive behaviour through their association with empathy development.

Furthermore, as with age, social norms and expectations of behaviour vary across gender. Both empathy and aggressive behaviour are associated with differing socialization processes across gender. While most societies encourage empathic behaviour and discourage aggressive behaviour, gender dictates what is deemed acceptable behaviour. Culture and gender stereotypes would have us believe that women are more empathic than men (Klein & Hodges, 2001; Hoffman, 1977; Lennon & Eisenberg, 1987). As a result, for example, it is more acceptable if a girl plays with a doll in a caregiving manner than a boy. Furthermore, many societies also find rough-and-tumble play more acceptable in young boys than in young

girls. Gender therefore plays a role in how the child behaves as well as how others interact with the child. These reciprocal interactions teach the child how to behave. Socialization processes associated with gender can therefore play a role in aggressive behaviour directly and also indirectly through their association with empathy development.

Given the associations between gender and empathy, gender and aggressive behaviour, and empathy and aggressive behaviour, it follows that empathy could moderate the relationship between gender and aggressive behaviour. While there is some evidence that this might hold for a typically developing sample (Dadds et al., 2008), gender has been identified as a significant moderator of the relationship between empathy and clinically aggressive behaviour (Hoeve et al., 2009; Joliffe & Farrington, 2007; Rueckert & Naybar, 2008; Schechtman, 2002; Warden & Makinnon, 2003; van Langen et al., 2014). Importantly, these latter findings (i.e., gender as a moderator) are limited to predominantly male samples. To clarify, the much higher rate of clinically aggressive behaviour in males has resulted in the recruitment of predominantly male samples. Our understanding of the relationship between empathy and aggressive behaviour in females requires further investigation. Nevertheless, there is ample evidence to indicate that aggressive behaviour is differentially determined across gender, in both typically developing and clinically aggressive children and adolescents. For example, as will be subsequently become evident, factors situated within the Everyday contexts (such as parent contributions) can play a role in aggressive behaviour differentially depending on gender (de Kemp et al., 2007; Moffitt, Caspi, Rutter, & Silva, 2001; Zahn-Waxler & Polanichka, 2004).

Everyday contexts. The everyday contexts are the most influential contexts; these are the contexts within which a child finds him/herself on a daily basis, such as family, school, and neighbourhood (Bronfenbrenner, 1979). Since behaviour is reciprocally determined and development is transactional in nature (Grusec, 1992; Koschanska & Kim, 2010; Sameroff, 1975), the agents within these contexts such as teachers, peers, and parents play an important part in shaping child development and consequent behaviour. Additionally, factors within the everyday context interact with one another, and also across levels of context, further contributing to child development (Bronfenbrenner, 1979). As it was not possible to include all everyday context factors, this dissertation focussed only on a selection of parent correlates of child behaviour. The relationships between aggressive behaviour and three factors concerned with interactions with parents, namely parenting style, parent empathy, and child attachment style, are discussed below. These three factors situated in the everyday context of

family were chosen given evidence of their associations with both empathy and aggressive behaviour.

I specifically focussed on the role of parents in child development as the family context is regarded as a critical context for child development, and parenting practices in specific are known to play a pivotal role in child development. Negative caregiver-child transactions, for example, have been associated with increased aggressive, delinquent, and antisocial behaviour (Hoeve et al., 2009; Moffitt, 1993; Patterson & Yoerger, 2002). The parent-child relationship is also considered a reliable correlate of children's internalising and externalising disorders (Trentacosta et al., 2008). Social Learning Theory, for example, can explain how parents play a role in their children's behaviour. Children learn how to behave by forming mental representations of behaviour. These mental representations are largely formed based on the behaviours of agents they come into contact with on a daily basis (i.e., within the everyday contexts). Parents can therefore play a large part in teaching children how to behave, and what they should expect when they behave in certain ways. Parent contributions can therefore be considered an important conduit for child development, and consequently, poor behavioural outcomes such as aggressive behaviour.

***Parenting style as a correlate of aggressive behaviour*.** Studies conducted outside of South Africa have identified parenting style as an important correlate of child development and behaviour. The relationship between parenting style and aggressive and externalising behaviour problems in children has been particularly thoroughly investigated and documented (Hart, Newell, & Olsen, 2003; Hoeve et al., 2009; Joliffe & Farrington, 2004; Schechtman, 2002; Steinberg, 2001; van Langen et al., 2014; Warden & Mackinnon, 2003; Wood, McLeod, Sigman, Hwang, & Chu, 2003). The consensus is that parenting style plays an important role in the development of behavioural problems in young people. While a few researchers have made the controversial suggestion that parents have little to no influence on child development (e.g., Harris, 1995, 2000), there is a great deal of evidence indicating otherwise, as will be seen in the review to follow. In fact, ineffective parenting is considered by some the most established risk factor for the development of behavioural problems (Dadds, 1995; Prinz & Jones, 2003). When investigating parenting style and its correlates, two perspectives are generally adopted, namely dimensions and typologies. Regardless of the approach, there is ample evidence to demonstrate a relationship between parenting style and aggressive behaviour in children and adolescents.

Parenting style dimensions. Dimensions describe the quality of parenting behaviour, such as warm, supportive or controlling (see Holden, 1997, for an overview). Support and

control have been identified as key dimensions (Hart et al., 2003; Schaefer, 1965). In terms of parenting style, a supportive parent is one who is involved/connected, warm, and supportive towards the child (Galambos et al., 2003; Wood et al., 2003), while a controlling parent places many demands on the child (Hoeve et al., 2009). A controlling parent can employ behavioural control (i.e., regulate the child's behaviour through firm and consistent discipline techniques such as monitoring and limit-setting) and/or psychological control (i.e., regulate the child's behaviour through psychological means such as love withdrawal, keeping the child dependent on the parent, and guilt induction) (Barber, 1996; Galambos et al., 2003).

The relationship between different parenting style dimensions and aggressive behaviours is well-documented. For example, high levels of support/warmth have generally been associated with lower levels of aggressive and delinquent behaviour, and have been linked to several positive outcomes (Barnes & Farrell, 1992; Buschgens et al., 2010; Juang, & Silbereisen, 1999; Strayer & Roberts, 2004). Harsh parenting, on the other hand, has been found to be a significant risk factor for the development of externalising behaviour problems such as aggression (Ward, 2015[7]), particularly during the first few years of life (Jaffee, 2007). Furthermore, high levels of behavioural control have been associated with lower levels of externalising behaviour problems in both children and adolescents (Barber, 1996; Barber & Olsen, 1997; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Pettit, Laird, Dodge, Bates, & Criss, 2001; Stice & Barrera, 1995), while increased psychological control elevates the risk for internalizing problems as well as delinquent behaviour (Barber, Elson, & Shagle, 1994 and Hoeve et al., 2009). The quality of parenting behaviour (i.e., parenting style dimensions) therefore appears to play a role in the development of aggressive behaviour in children.

Parenting style typologies. Typologies refer to constellations of dimensions. This approach focuses on parents' attitudes and behaviours across situations. Baumrind (1966, 1971) identified three parenting style typologies, namely authoritative, authoritarian, and permissive parenting. Elaborating on the work of Baumrind, Maccoby and Martin (1993) defined parenting style according to a two-dimensional framework of support and control. As a result, four parenting style typologies are identified: Authoritarian (low support, high control), Authoritative (high support and high control), Permissive (high support, low control), and Neglecting (low support and low control). While the Authoritative parenting style is associated with positive behavioural outcomes, the remaining three styles place

[7] Note that this reference is concerned with international literature, not South African literature, despite the South African author (i.e., Professor Catherine Ward).

children at risk for poor behavioural outcomes, with a neglecting parenting style associated with the highest risk of delinquent behaviour (Maccoby & Martin, 1983; Steinberg, Blatt Eisengart, & Cauffman, 2006).

Bearing the above two approaches in mind, parenting style can also be described as positive and/or negative. For example, positive parenting style practices include parental warmth, involvement, and positive reinforcement, to mention a few. Negative parenting practices, on the other hand, include poor monitoring and/or supervision, coercive, inconsistent, non-contingent, restrictive, and overly strict disciplining techniques, as well as techniques which include negative aspects of control such as withholding love and harsh punishment. These negative practices have all been associated with poor behavioural outcomes (Dadds, 1995; Farrington, 1989; Farrington, Loeber, Yin, & Anderson, 2003; Frick & Viding, 2009). To explain, for example, poor monitoring/supervision removes the opportunity for parents to teach their children how to behave and choose friends wisely (Loeber & Stouthamer-Loeber, 1986). Furthermore, when rules are made and applied inconsistently, children struggle to understand the link between behaviour and consequence (Bandura, 1986). It is not surprising that negative parenting practices or the absence of positive parenting practices have consistently been related to externalising behaviour problems (Dadds. 1995; Fite, Colder, & Pelham, 2006; Hoeve et al., 2009; Loeber & Stouthamer-Loeber, 1986; Trudeau, Mason, Randall, Spoth, & Ralston, 2012). Despite the different approaches to conceptualising parenting style, the quality of parenting practices (i.e., negative vs. positive) has been shown to be associated with behavioural outcomes such as aggressive behaviour.

Notably, while studies have provided much evidence for a direct relationship between parenting style and poor behavioural outcomes, several indirect relationships have also been identified. For one, the importance of parenting style changes as a function of age. For example, Hoeve and colleagues (2009) report that the relationship between parenting style and delinquent behaviour may weaken as the child ages; they offer the explanation that other life events and peers have more of an impact on children as they age than parents do. Parental monitoring has also been identified as important as children progress into adolescence, and particularly in high risk contexts (Dodge et al., 2008). This also makes sense given that parenting is a dynamic endeavour. Child behaviour and the environments he/she encounters change as the child matures. As a result, parent behaviour shifts. Certain parenting behaviours are therefore more effective in producing positive outcomes in certain contexts. Aside from age, it is also important to take gender into account. For example, males appear to be more

susceptible to risk factors such as poor parenting practices while girls are more responsive to positive parenting than boys (de Kemp et al., 2007; Moffit et al., 2001; Zahn-Waxler & Polanichka, 2004). In addition to this, inconsistent parenting has also been associated with increased risk for developing problematic self-regulation skills (Loeber & Stouthamer-Loeber, 1986), which has in turn been associated with increased behavioural problems.

Aside from the relationships with individual context, parenting style is also associated with factors within the everyday contexts and broader contexts. For example, parenting style has been connected to parent empathy as well as SES, both of which can be linked to child aggressive behaviour (DeGarmo, Forgatch, & Martinez, 1999; Letourneau et al., 2011; Piotrowska et al., 2015; Soenens et al., 2007; Strayer & Roberts, 2004). For example, low SES has been associated with negative parenting (e.g., unsupportive, inconsistent, and uninvolved), and has also been linked to poor caregiver-child attachment (Crittenden, 2008; Meadows, McLanahan, & Brooks-Gunn, 2007). Additionally, higher SES in terms of income, education, and occupation, have also each been linked to better parenting (DeGarmo et al., 1999). In keeping with EST then, while parenting style plays a role in aggressive behaviour directly, it can also do so indirectly by interacting with other factors situated at all levels of the child's ecosystem of contexts. These indirect relationships should therefore be considered as important as the direct relationships. One indirect relationship that requires further investigation is concerned with empathy.

Parenting style, empathy, and aggressive behaviour. As can be seen, an entire body of literature is devoted to understanding the relationship between parenting style and aggressive behaviour. Similarly, a second body of literature focuses on the relationship between empathy and aggressive behaviour. Together these bodies of literature suggest that these three variables are likely linked to one another (Schaffer et al., 2009). In theory, the family context plays a very important role in child social, emotional, and psychological development. As such, an argument can be made that child empathy develops in the parent-child interaction (Chan & Koo, 2011; Levin & Currie, 2010; Saha, Huebner, Suldo, & Valois, 2010; van der Mark, van IJzendorn, & Bakermans-Kranenberg, 2002). It is unsurprising then that the relationship between parenting style and child empathy has also been investigated (Antonopolou, Alexopoulos, & Maridaki, 2012; de Kemp, de Wied, Engels, & Scholte, 2007; Schaffer et al., 2009; Soenens, Duriez, Vansteenkiste, & Goosens, 2007; Zhou et al., 2002). While findings at times have been contradictory (see Antonopolou et al., 2012), there is some reason to suspect that parenting style would be associated with child empathy (Strayer &

Roberts, 2004). The relationship between parenting style and empathy in the context of aggressive behaviour, however, has received very little attention to date.

A review of the literature suggests that further investigation into the relationship between parenting style, empathy, and aggressive behaviour may be pertinent (de Kemp et al., 2007; Schaffer et al., 2009; Strayer & Roberts, 2004; Zhou et al., 2002). Theoretically, it makes sense that the association between parenting style and aggressive behaviour may vary with child empathy. Supporting this theory, in clinical samples children low on empathy were less responsive to parenting practices (Oxford, Cavell, & Hughs, 2003; Wooton, Frick, Shelton, & Silverthorn, 1997). Specifically, these children were low on affective empathy and high on callous-unemotional traits and were not affected by negative parenting. In normative samples this relationship is unclear, as investigation is still in its infancy (e.g., de Kemp et al., 2007). The literature regarding this relationship is very limited; while it is clear that parenting style plays a role in aggressive behaviour directly, it may also do so indirectly through its association with empathy.

Parenting style as a correlate of aggressive behaviour in South Africa. Compared to international investigation, investigation of the relationship between parenting style and aggressive behaviour in South Africa has been thin. Findings have been limited to very few published studies and a handful of unpublished dissertations (published findings discussed below), and have not always been in keeping with international literature. For example, in keeping with international literature, Burton, Leoschut, and Bonara (2009) demonstrated that poor parental supervision was associated with adolescent antisocial behaviour and that parent support protected against such behaviour. Mandisa (2009) furthermore identified inadequate parenting practices in a population of young offenders. Contrary to expectations, however, a recent study conducted by Ward and colleagues (2015) found that positive parenting was not associated with better behavioural outcomes. It should be noted, however, this study explored the relationship between parenting and children's externalising and internalising disorders in a small rural community in South Africa – a very specific context. Furthermore, given poor psychometric properties of the parenting style questionnaire employed, the associations between some aspects of parenting style and aggressive behaviour could not be examined in this study. Additionally, Ward and colleagues (2015) point out that the relationship between parenting style and aggressive behaviour in South Africa (1) had previously only been investigated in young offenders, (2) had not been replicated elsewhere in South Africa, and (3) did not examine both contextual stressors and parenting. While their study addressed all

three of these points, it does draw attention to the need for further investigation into the relationship between parenting style and aggressive behaviour in South Africa.

Given the vast body of international findings, parenting practices have been inferred to be important in the South African context. This is reflected in the central importance effective parenting programmes are afforded in violence prevention strategies in South Africa (for a review of the numerous programmes employed in South Africa, see Wessels & Ward, 2015). However, while some studies have demonstrated findings in keeping with that of international studies, findings by Ward and colleagues (2015) suggest possible differences in the role of parenting style when compared to international findings. This draws attention to the importance of context. However, this one study is hardly enough to discredit a hypothesis. Further investigation is necessary to investigate both the similarities (which are expected) as well as the differences (which are possible) in the relationship between parenting style and aggressive behaviour in the South African context.

Parent empathy as a correlate of aggressive behaviour. A search of the literature revealed that, to date, the relationship between parent empathy and aggressive behaviour in children and adolescents has not yet been investigated (i.e., no publications). While it makes logical sense that parent empathy might not be directly associated with child behaviour, an argument can be made that it could be associated indirectly. As mentioned before, parents are an important conduit for child development and behaviour. Essentially, parents teach their children how to behave through socialization processes such as modelling. Parents' empathic behaviour could therefore facilitate empathic behaviour in children in this way (Soenens et al, 2007), which in turn could decrease the likelihood of aggressive behaviour. Since we know that child behaviour is shaped by the caregiver-child relationship (Bronfenbrenner, 1979; Penney & Moretti, 2010), and that child empathy is associated with aggressive behaviour, it is reasonable to suspect that parent empathy could indirectly play a role in aggressive behaviour through its association with child empathy.

Parent empathy, child empathy, and aggressive behaviour. The indirect relationship between parent empathy, child empathy, and aggressive behaviour requires further investigation. As pointed out above, the relationship between parent empathy and child aggressive behaviour has not yet been investigated. Furthermore, while the relationship between parent empathy and child empathy has been afforded some attention, further investigation is necessary (Strayer & Roberts, 2004). For one, the existence and magnitude of this relationship has varied considerably in the few studies conducted. Earlier findings have been equivocal, with most studies revealing a very small relationship if any (Bernadett-

Shapiro, Ehresaft, & Shapiro, 1996; Kalliopuska, 1984; Strayer & Roberts, 1989; 2004). In contrast, more recent investigations with larger samples support the intergenerational transmission of empathy (see Hawk et al., 2013; Soenens et al., 2007; van Lissa et al., 2014). Overall, while recent findings support theory (i.e., that parent and child empathy should be related; Feshbach, 1987), further investigation is warranted.

Parent empathy may well be associated with child empathy and aggressive behaviour. An argument can be made that parent empathy is a more important correlate of aggressive behaviour than initially suspected. Strayer and Roberts (2004) identified several paths of association between parent and child empathy in their investigation, revealing that the relationship between parent empathy and child empathy was mediated by other factors such as child anger and parental control. In keeping with this, Soenens and colleagues (2007) identified parental support as a mediating factor for the transmission of perspective-taking (i.e., one measure of Cognitive Empathy) between parent and child. Furthermore, Strayer and Roberts (2004) point out that the mediated effects include positive and negative effects. As a result, these opposing paths cancel each other out, misleading us into thinking that parent and child empathy may not be related. Consequently, investigating only its direct association with aggressive behaviour masks the relationship between parent empathy and child empathy. Moreover, recent investigations have also revealed that parent empathy is associated with child behaviour through pathways other than via child empathy. It is associated with other correlates of child behaviour such as parenting style (discussed earlier) and attachment style (to be discussed next), thereby making parent empathy an important correlate to consider.

Child attachment style as a correlate of aggressive behaviour. According to Bowlby (1969), the first relationship an infant forms with his/her primary caregiver (i.e., attachment) serves as a template for future relationships. Through the interactions between caregiver and infant, the infant builds internal working models of relationships; essentially, the infant learns how to relate to others. These internal working models impact on later emotional, behavioural, and cognitive transactions, and consequently facilitate functioning within a social environment (Bowlby, 1969; Penney & Moretti, 2010; Shaver & Mikulincer, 2005). For example, internal working models inform children's responses to others and help regulate and guide behaviour appropriately (Eisenberg & Eggum, 2009; Weinfield et al., 1999). The attachment process facilitates the development of self-regulation for both affect and behaviour (Panfile & Laible, 2012; Weinfield et al., 1999). It follows that attachment is an important factor to consider when investigating correlates of child behaviour (Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010; Penney & Moretti,

2010). Indeed, numerous studies (conducted outside of South Africa) have demonstrated that child attachment style is an important correlate of aggressive, delinquent, and antisocial behaviour, as well as externalising behaviour problems in children and adolescents (DeKlyen & Greenberg, 2008; Fearon & Belsky, 2011; Fearon et al., 2010; Kochanska & Kim, 2010; Moss et al., 2006).

Attachment style. The most widely recognized and employed attachment styles to date include secure, anxious-ambivalent, and avoidant attachment style (Ainsworth et al., 1978; Bowlby, 1969) as well as disorganized attachment (Main & Solomon, 1986). These styles are all concerned with the infant/individual's sense of security. To illustrate, a secure attachment is fostered by a caregiver who provides a secure base by consistent responsiveness with support or comfort. The infant/individual feels that the caregiver is a secure base from which to explore the world. In contrast, an insecure attachment is fostered by a caregiver who is not responsive or is inconsistently responsive to the infant/individual. Anxious-ambivalent, avoidant, and disorganized attachment style are examples of insecure attachment. These insecure attachment styles have been repeatedly associated with aggressive, delinquent, antisocial behaviour, and externalising behaviour problems in children and adolescents (Fearon et al., 2010; Kochanska & Kim, 2012; Troy & Srouf, 1987; van IJzendoorn, Goldberg, Kroonenberg, & Frenkel, 1992). Furthermore, there has also been some indication (albeit inconsistent) that disorganized attachment style may be a stronger correlate of externalising behaviour problems than insecure attachment style in general (see Fearon et al., 2010 and van IJzendoorn, Schuengel, & Bakermans-Kranenberg, 1999). In other words, findings have shown insecure attachment style to be associated with increased risk of aggressive behaviour.

However, while a relationship between attachment style and aggressive behaviour is well-evidenced, particularly in high risk and clinical samples, the mechanisms of its contribution are less well-understood. This is a result of the multiple indirect pathways from attachment style to aggressive behaviour (see Kochanska & Kim, 2010). The need for further investigation into the indirect pathways between early attachment and aggressive behaviour is therefore stressed repeatedly throughout the literature (Cox, Mills-Koonce, Propper, & Gariepy, 2010; Fearon & Belsky, 2011; Fearon et al., 2010; Masten & Cicchetti, 2010; Sroufe, 2005).

Child attachment style, empathy, and aggressive behaviour. One such indirect pathway to aggressive behaviour is via empathy. This indirect relationship between attachment, empathy, and aggressive behaviour has received some attention in recent years

(Kochanska & Kim, 2012; Panfile & Laible, 2012). For example, non-secure caregiver-child attachments have been associated with poor emotion regulation skills and an increased risk of behavioural problems (Kochanska & Kim, 2012). Furthermore, avoidant attachment has specifically been associated with future lack of empathy and aggressive and antisocial behaviour (Troy & Srouf, 1987; van IJzendoorn et al., 1992). These findings make sense given that (1) attachment facilitates the acquisition of working models of relating, and empathy comprises processes through which people relate to others (Zaki & Oschner, 2012) and (2) empathy has been associated with aggressive and antisocial behaviour. Consequently, researchers have stressed that the indirect pathways between early attachment and aggressive behaviour need to be better understood to improve our understanding of future aggressive and antisocial trajectories (Kochanska & Kim, 2012; Penney & Moretti, 2010).

At this point, it should be clear that factors within the Everyday contexts play a role in the development of aggressive behaviour in young people. Specifically, I have presented compelling evidence demonstrating the pivotal role parents/primary caregivers play in their child/adolescent's development and subsequent behaviour. I have shown that parenting style, parent empathy, and attachment style have all been associated with aggressive behaviour in young people. It should be noted, however, that other agents within the Everyday contexts (such as peers and teachers, for example) also contribute to child development and behaviour. Additionally, the broader societal and community contexts also contain factors which are associated with aggressive behaviour (as will subsequently be discussed).

Broader societal and community context: Socioeconomic status. The broader community and societal contexts, such as SES, are particularly important to consider given their multiple indirect associations with child development and behaviour. To illustrate, it is widely accepted that SES can significantly play a role in child development and well-being and that this role can begin prior to birth and continue through childhood and adolescence into adulthood (Bradley & Corwyn, 2002; Hackman & Farah, 2009; Letourneu, Duffett-Leger, Levac, Watson, & Young-Morris, 2013; McLoyd, 1998; Mendelson, Kubzansky, Datta, & Buka, 2008; Veenstra, Lindenberg, Oldehinkel, de Winter, & Ormel, 2006). In terms of neurocognitive development, for example, SES has generally been positively associated with cognitive abilities such as language, intelligence, and executive function (Bradley & Corwyn, 2002; Hackman & Farah, 2009; Hackman, Gallop, Evans & Farah, 2015; Schoon, Jones, Cheng, & Maughan, 2012; Von Stumm & Plomin, 2015). Furthermore, SES has also been negatively associated with both internalising and externalising behaviour

problems, as well as aggressive, antisocial, and violent behaviour (Fatima & Sheikh, 2014; Letourneau et al., 2013; Piotrowska et al., 2015).

As will be discussed shortly, numerous studies conducted outside of South Africa have identified SES as an important correlate of child development and behaviour, and particularly aggressive and violent behaviour (Fatima & Sheikh, 2014; Letourneau et al., 2011; Piotrowska et al., 2015). The relationship between SES and aggressive and violent behaviour in South Africa has also received attention, albeit less (Morrow et al., 2005; Seedat et al., 2009; Ward 2007a). In fact, Ward (2007a) proposes that SES is perhaps one of the most crucial factors to consider when investigating the correlates of aggressive and violent behaviour in young people in South Africa. Consequently, the influence of SES should not be overlooked when investigating the correlates of aggressive and violent behaviour, internationally as well as in South Africa.

Defining SES. Before continuing with a discussion of the relationship between SES and aggressive behaviour, it is important to address what is meant by SES and how best to measure this construct. Socioeconomic status is a theoretically complex and therefore methodologically challenging term (see Bradley & Corwyn, 2002; Oakes & Rossi, 2003). What exactly this term represents has varied over studies (see Bradley & Corwyn, 2002). Most scholars consider SES to encompass a measure of one's resources (both material and non-material), one's prestige within a society (often coupled to level of education and occupation), as well as one's assets (Bradly & Corwyn, 2002). In other words, SES encompasses financial capital (i.e., material resources), human capital (i.e., non-material resources) and also social capital (i.e., resources gained through social connections) (Coleman, 1998). As a result, income and assets (material resources) as well as education and occupation (non-material resources) are the most commonly employed indicators of SES. Today most scholars include some quantification of the social and material resources an individual possesses such as material wealth, educational attainment, occupation, and income, while some employ single indicators (Bradley & Corwyn, 2002; Kraus & Knelter, 2009; Oakes & Rossi, 2003; Snibbe & Markus, 2005).

In developing countries such as South Africa, it has been argued that a composite measure of SES that takes into account various indicators of SES would be able to more adequately capture variation in socioeconomic position (Barnes, Wright, Noble, & Dawes, 2007; Booysen, 2001; Cooper, Lund, & Kakuma, 2012; Myer, Stein, Grimsrud, Seedat, & Williams, 2008). However, while there is a general consensus that a composite measure would be better at measuring SES than one indicator of SES, how to best create such a

composite and measure each indicator remains unclear (Bradley & Corwyn, 2002). Moreover, the usefulness of employing a composite versus individual indicators when investigating its relationship with child development is subject to debate (see Bradley & Corwyn, 2002, for a discussion). For example, findings regarding the role of individual indicators such as income have been more consistent than findings regarding the role of SES when a composite has been employed. This can be explained by the use of composites comprising different indicators across studies. To illustrate, in some instances the indicators have not all correlated with the outcome measure, while in others they have. This in turn is suggestive of different paths of association for the various indicators (Ostrove, Feldman, & Adler, 1999). Moreover, there has also been evidence to suggest that the different indicators of SES such as parent education and family income, do not always act in concert in childhood (Geyer, Hemström, Peter, & Vågerö, 2006; Næss, Claussen, Thelle, & Smith, 2005). An argument can therefore be made that the different indicators of SES are differentially associated with child development. While a composite measure of SES is likely to more adequately capture variation in socioeconomic position, its usefulness in explaining behaviour is subject to debate.

Socioeconomic status as a correlate of aggressive behaviour. The relationship between SES and aggressive and violent behaviour in young people has often been investigated internationally. What has emerged from these investigations is that SES plays a complex role in the development of aggressive and antisocial behaviour in children and adolescents (Fatima & Sheikh, 2014; Letourneau et al., 2011; Piotrowska et al., 2015). Numerous studies have found that children from low-SES backgrounds are more likely to exhibit higher prevalence rates of behavioural problems such as aggression (Amone-P'Olak, Burger, Huisman, Oldehinkel, & Ormel, 2011; Costello, Compton, Keeler, & Angold, 2003; Pachter, Auinger, Palmer, & Weitzman, 2006; Yu, Shi, Huang, & Wany, 2006). In line with this, in a recent meta-analysis by Piotrowska and colleagues (2015) found a small significant relationship between SES and broadly defined antisocial behaviour in children. A second meta-analysis also found a small significant relationship between SES and aggressive behaviour (Letourneau et al., 2013). These findings support the notion that SES is negatively associated with aggressive behaviour.

However, the relationship between SES and aggressive behaviours has not always been found. For example, while Letourneau and colleagues (2013) conclude that a relationship exists, not all of the studies they included in their analysis found this relationship. Furthermore, the strength of the relationship has also varied across studies (see Piotrowska et

al., 2015). An argument can, however, be made that this inconsistency may well be the result of inconsistency in definitions and subsequent measurement of both SES and aggressive behaviour. Despite this, there is ample evidence encouraging further investigation of the relationship between SES and aggressive behaviour.

The relationship between SES and aggressive behaviour is no doubt complex. The mechanisms leading to poor developmental outcomes such as aggressive behaviour could be linked directly to SES, a factor closely related to SES (e.g., being a single parent), both of these, or a third variable that is in some way connected to both (e.g., parenting style). To further complicate matters, the significance of these variables may change during the course of childhood (Kalil & DeLeire, 2004; McLoyd & Shanahan, 1993; Ward, 2015). For example, living in an impoverished neighbourhood may translate into to less access to resources in young children, which in turn is associated with poor neurocognitive development. For adolescents, living in the same impoverished neighbourhood may translate into an increased chance of associating with deviant peers. It is clear that SES can play a significant role in the mechanisms underlying behavioural problems such aggressive behaviour (Dodge, Pettit, & Bates, 1994; Letourneau et al., 2013; Oakes & Rossi, 2003).

Socioeconomic status, empathy, and aggressive behaviour. Surprisingly little has been documented regarding the relationship between SES and empathy (Joliffe & Farrington, 2004; 2006). Although the relationship lacks empirical support, there is reason to suspect that SES is associated with empathy development. For example, since SES has been associated with neurocognitive development, it follows that SES could play a role in the development of the higher-order aspects of empathy (Cognitive Empathy and Affect Regulation). Furthermore, social learning theory would suggest that low SES, through its association with increased exposure to violence, may be associated with desensitization and reduced empathy (Funk, Baldacci, Pasold, & Baumgardner, 2004; Guo et al., 2013; Tabarah, Badr, Usta, & Doyle, 2016). Another possible explanation is that SES could be associated with parent behaviour (e.g., parent empathy), which in turn can play a role in child behaviour. A number of possible pathways can be hypothesized. Specifically, while the relationship between SES and empathy is poorly understood, an argument can be made that SES could indirectly play a role in aggressive behaviour via its association with empathy.

Socioeconomic status as a correlate of aggressive behaviour in South Africa. The role of SES in the development of aggressive and violent behaviour in young people in South Africa should not be overlooked (Ward, 2007a). This correlate has by far received the most attention in South Africa, and understandably so. In keeping with international findings,

investigations have indicated that SES is negatively associated with increased aggressive and violent behaviour (Demosthenous et al., 2002; Nagin & Tremblay, 2001; Pinnock, 2016; Ward, 2007a; Ward & Cooper, 2012). Widespread poverty, unemployment, and income inequality are cited as important social factors supporting aggression and violence (Seedat et al., 2009). Additionally, low SES has been associated with an increased likelihood of gang membership in young people in South Africa. While investigations in South Africa have been few compared to international investigations, there is ample evidence supporting the notion that SES is a very important factor to take into consideration when investigating correlates of aggressive behaviour, thereby not only encouraging, but insisting on further investigation.

Overall, the relationship between SES and child developmental outcomes such as those discussed above can be explained by the multiple indirect correlates of SES. In other words, SES is associated with factors within every level of the child's ecosystem of contexts. For example, SES is associated with cognitive ability (individual level; e.g., Fatima & Sheikh, 2014; Hackman & Farah, 2009), quality of parenting (every day level; e.g., DeGarmo, Forgatch, & Martinez, 1999; van der Merwe et al., 2012), as well as rates of youth violence (societal level; e.g., Dodge et al., 2008; Foster, 2012). These factors have, in turn, been associated with increased aggressive and violent behaviour in children and young adolescents (see earlier discussion).

Macrosytem context: a culture of violence. At this point, a brief word on the macrosystemic correlates of behaviour is warranted. As posited by EST, the overarching values, customs, culture, and laws are expected to be associated with aggressive behaviour. An obvious example is that many countries have laws which discourage harmful behaviour towards others. Another example, pertinent to the South African context, is that of the socialization of youth into violent lifestyles (Garabarino, 1999). There is evidence to indicate that aggression and violence begets future aggression and violence. As Tarabah and colleagues (2016) explain, exposure to violence increases the use of violence and aggression as individuals come to consider such behaviour as normal. In South Africa, for example, many young people are being socialized (e.g., through peers, caregivers, society) into a lifestyle where aggression and violence is the norm, and at times a necessity. An argument can therefore be made that the high rates of aggressive and violent behaviour in South Africa facilitate an environment in which aggressive and violent behaviour is a norm – a so-called culture of violence.

In terms of empathy, this lifestyle of aggression and violence is one where empathy for others can also be maladaptive. For example, empathising with another individual may

make the individual 'too soft' to survive in a high violence environment and/or increase the likelihood of victimization. Additionally, Palmeri Sans and Truscott (2004) demonstrated that reduced empathy alone did not increase the likelihood of using violence in a sample of adolescents, but that reduced empathy in conjunction with high levels of exposure to community violence was a significant correlate of violent behaviour in this sample. Consequently, while macrosystemic correlates of aggressive behaviour were not formally investigated in this dissertation, the role of macrosystemic factors should not be underestimated, particularly in a context such as in South Africa where violence is rife.

To summarize, Chapter Four adopted an EST approach to understanding the correlates of aggressive behaviour. I presented evidence to illustrate that numerous factors situated at all levels of the individual's ecosystem of contexts (i.e., internal and external) act as 'regulators' of aggressive behaviour. In doing so, it became clear that aggressive behaviour is associated with a confluence of multiple factors, which are also interactive. Furthermore, by highlighting the relationship between these factors, empathy, and aggressive behaviour, the complexity of behaviour was apparent. Consequently, investigation of these factors as correlates of aggressive behaviour in isolation from one another, while simplifying matters, would be artificial.

Chapter Four also drew attention to the need for further investigation into the correlates of aggressive behaviour, both internationally and in South Africa. Discussion of the factors previously associated with aggressive behaviour revealed that, despite much investigation internationally, our understanding of the correlates of aggressive behaviour and their multiple connections to other correlates requires much further investigation. This discussion furthermore drew attention to the lack of, and in many instances absence of, investigation in South Africa. Aside from SES, very few other factors have received attention (such as parenting style, for example). Consequently, echoing Ward and colleagues (Ward, 2007a; Ward et al., 2012), further investigation is imperative, both internationally and in South Africa, and that in South Africa the role of SES requires particular attention.

RATIONALE FOR RESEARCH

Aggressive and violent behaviour is a widely recognized major global social problem that is particularly pertinent in South Africa (Foster, 2012; Krug et al., 2002). In South Africa, as in many other countries, a large proportion of these aggressive and violent acts are committed by young people. In the Western Cape of South Africa in specific, the escalation of aggression and violence in schools among children and adolescents is particularly disconcerting, and has been linked to increased gang activity in this province (Burton, 2008; Pinnock, 2016; SACE, 2011; Ward & Cooper, 2012). Consequently, investigating the factors which are associated with such behaviour in young people holds much practical value. Moreover, since early aggressive behaviour has been associated with later aggression and violence (e.g., Farrington, 1989; Moffitt, 1993; Pingault et al., 2013), the early childhood through adolescent years is an important platform for investigations to inform strategies to reduce and prevent future aggressive and violent behaviour. For these reasons, I investigated correlates of aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa.

The primary contribution of this dissertation was theoretical. As demonstrated by the literature reviewed, the South African knowledge base regarding the correlates of aggressive behaviour is very thin. Consequently, the primary focus of this dissertation was to investigate the correlates of aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa. Moreover, I have argued that, as suggested by international findings, empathy should be considered an important construct in explanations of aggressive behaviour. Despite this, a review of the literature revealed that the South African literature on this topic is limited to one study, which is further limited by poor psychometric properties of the empathy questionnaire it employed (Malcolm-Smith et al., 2015). Further investigation into the relationship between empathy and aggressive behaviour in South Africa was therefore warranted. More investigations such as the current dissertation are necessary to provide a theoretical base to inform practice in South Africa.

Importantly, I have also shown that despite extensive international investigation, the precise nature of the relationship between empathy and aggressive behaviour is unclear. As discussed in the literature reviewed, these mixed findings stem from theoretical and methodological issues. First and foremost, our understanding of this relationship is undermined by definitional issues (Decety, 2011; Mar, 2011; Tremblay, 2000). In brief, inconsistent and inadequate conceptualisations of empathy and broad definitions of

aggressive behaviour have made it difficult to interpret findings meaningfully and compare findings across studies. Next, the importance of taking context into account has been erroneously underemphasized, with very few studies examining the role of third variables (Joliffe & Farrington, 2004). In addition to this, findings have also been hampered by measurement issues (Lovett & Sheffield, 2007). Finally, the relationship between empathy and aggressive behaviour in children and young adolescents has predominantly been investigated in a variety of clinical samples, which has given rise to a number of limitations in our understanding. Consequently, this dissertation aimed to address these sources of inconsistency for a more refined understanding of the relationship between empathy and aggressive behaviour.

Research Approach

Theoretical considerations. For the purposes of this dissertation, I conceptualised empathy as comprising an Affective, a Cognitive, and an Affect Regulation component (see Chapter Two; see Decety, 2011). I argued that a conceptualisation of empathy that includes only an Affective and Cognitive component, as agreed on by numerous scholars (albeit not all), is inadequate when it comes to investigating the relationship between empathy and behaviour; a more sophisticated understanding of the relationship between empathy and aggressive behaviour requires that we take into account how empathy is regulated. More specifically, in keeping with a neurobiological approach, I argued that the self-regulatory processes concerned with the regulation of affective states are of particular relevance to the construct of empathy. Furthermore, while I am aware that processes of affect regulation are not specific to empathy, I argued that they play an important role in understanding how empathy translates into behaviour. Deconstructing empathy into an Affective, a Cognitive, and an Affect Regulation component should therefore result in a more refined understanding of the relationship between empathy and aggressive behaviour.

Aggressive behaviour was specifically defined as externalising behaviour problems. Employing a narrow and specific definition such as externalising behaviours was crucial, as broadly defined aggressive behaviour (as it is too often defined) can be explained a by a multitude of factors (Burke, Loeber, & Birmaher, 2002; Frick, 2009; Loeber & Stouthamer-Loeber, 1998; Moffit, 2006; Reebye, 2005). While it may then seem counter-intuitive to employ a measure which includes a (a) rule-breaking and (b) aggressive behaviour component, I utilised this broader, yet still specific definition for a number of reasons. First and foremost, the externalizing subscale of the CBCL is widely-used and well-accepted, both

nationally and internationally, as a measure of externalizing aggressive behaviour in young people (e.g., Barbarin et al., 2001; Cluver, Gardner, & Operario, 2007; de Wied et al., 2005; Ferguson, San Miguel, & Hartly, 2009; Palin et al., 2009; van Beijsterveldt, Bartels, Hudziak, & Boomsma, 2003; Ward et al., 2015). It has also previously been used in the one study which has investigated the relationship between empathy and aggressive behaviour in South Africa (i.e., Malcolm-Smith et al., 2015). Using this subscale would enable a comparison with other national and international findings. Next, this measure has demonstrated strong psychometric properties to date across numerous samples (e.g., Achenbach & Rescorla, 2001; Ivanova et al., 2007; Roessner et al., 2007), including South African samples (e.g., Palin et al., 2009; Ward et al., 2015), and is the most reliable measure of aggressive behaviour available. A third reason for 'broadening' of definition was that, given that my sample consisted of typically developing children and adolescents, I was worried that there would be too little variability in data (i.e., restricted range) if I only used the aggressive behaviour component questions. This would pose serious problems for data analysis. Additionally, while to a lesser degree than in clinically aggressive samples, these externalising behaviours are reasonable to expect in a typically developing sample. As pointed out in the literature review, these externalising behaviours are the most prevalent and persistent maladaptive behaviour seen in childhood and have been identified as a major risk factor for later such behaviour (Campbell, 1995; Farrington, 1989; Moffit, 1993). Defining aggressive behaviour as externalising behaviour problems was therefore relevant for the typically developing children and young adolescents recruited for this dissertation.

Methodological considerations. Several methodological issues were also addressed. Firstly, as emphasized throughout, a contextual approach to understanding behaviour is critical (Bronfenbrenner, 1979; Ward et al., 2012). In keeping with a behavioural approach, I adopted an EST approach. I argued that the relationship between empathy and aggressive behaviour would more accurately be understood by concurrently taking into account factors situated at all levels of the individual's ecosystem of contexts, both internal and external to the individual. While including all possible correlates was ideal, it was impractical. I therefore included several of many factors known to be associated with both empathy and aggressive behaviour. Additionally, I presented evidence stressing the importance of taking SES into account in the South African context. Surprisingly, this contextual approach stands in stark contrast to studies which have previously investigated the relationship between empathy and aggressive behaviour. Including these factors was therefore a modest step in the direction of considering all context.

Secondly, decades of research have been hampered by measurement issues (Lovett & Sheffield, 2007). The multidimensional nature of empathy and inconsistent conceptualisations employed to date has resulted in the use of various measures. As a result, standardized and reliable measures which are consistently employed are hard to come by (Dadds et al., 2008). To counter this, as far as possible, I employed measures of empathy and a measure of aggressive behaviour that have been shown to be most appropriate for the South African context to date. Furthermore, as is encouraged when measuring behaviour and empathy (MacGowan, 1999; Schaffer et al., 2009), I adopted a multi-method and multi-informant approach, and employed several measures of empathy. Doing so, I argued, should facilitate a more accurate and comprehensive measurement of empathy as well as its relation to aggressive behaviour.

Finally, for the practical reasons mentioned earlier, I chose to investigate correlates of aggressive behaviour, and the role of empathy in specific, in a sample of typically developing children and young adolescents living in the Western Cape of South Africa. This stands in contrast to the predominant employment of clinical samples (e.g., conduct disordered, delinquent, callous-unemotional, incarcerated) when investigating the relationship between empathy and aggressive behaviour in child and adolescent samples. The use of predominantly clinical samples, however, has several limitations. For one, our understanding of this relationship is limited to clinical samples; the relationship in typically developing samples is very rarely investigated. This has furthermore resulted in the employment of predominantly adolescent samples, and thereby neglected investigation in child samples. This is problematic as behaviour is differentially determined across age (Bronfenbrenner, 1979; Dodge et al., 2008; Loeber, Burke, & Pardini, 2009; Ward, 2015). Additionally, as early aggressive behaviour has been associated with later aggression and violence, understanding the correlates of aggressive behaviour early on has maximal potential to inform strategies necessary to reduce and prevent later aggression. A developmental approach to investigating this relationship is therefore preferable.

While the most recent investigations into the relationship between empathy and aggressive behaviour in young samples have recruited participants exhibiting clinically significant aggressive behaviour, I recruited a typically developing sample. My reasoning is the following: In South Africa, the escalation of aggression and violence in schools indicate that, while typically developing children and adolescents might not be diagnosed as clinically aggressive, their behaviour may well be clinically relevant. To clarify, while an individual may not meet the criteria for a clinical diagnosis, increased levels of aggressive behaviour to

the point of harmful consequences is possibly a more likely scenario than in other typically developing samples. In the Western Cape in specific, reports of escalating aggressive and violent acts in schools such as stabbings, murder, and gang involvement are particularly disconcerting (Burton, 2008; Leoschut, 2008; SACE, 2011). This escalation has furthermore been tied to increased levels of gangsterism, particularly in coloured as well as poorer communities in this province (Pinnock, 2016; Ward & Cooper, 2012). In a sense then, typically developing coloured child/young adolescents, particularly those of low SES, living in the Western Cape of South Africa can be classified as an at risk sample. Determining the correlates of aggressive behaviour in this population is therefore crucial to inform strategies that aim to prevent future aggressive and violent behaviour.

To summarize, given the escalation of aggression and violence in school-aged children in the Western Cape of South Africa, this dissertation investigated correlates of aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa. The primary goal was to investigate the relationship between empathy and aggressive behaviour.. A more refined understanding necessitated further investigation in South African samples while addressing several theoretical and methodological issues.

This dissertation improved on previous studies by addressing theoretical and methodological issues which have compromised findings to date. I investigated the relationship between empathy (deconstructed into an Affective, a Cognitive, and an Affect Regulation component) and aggressive behaviour (specifically operationalised as externalising behaviours), while concurrently taking into account the role of several contextual factors situated within the individual's ecosystem of contexts. Furthermore, I adopted a multi-method and multi-informant approach to measure empathy and understand behaviour, employing measures that have been shown to be the most appropriate for the South African context to date. Finally, I chose to investigate correlates of aggressive behaviour, and the role of empathy in specific, in a sample of typically developing coloured children and young adolescents living in the Western Cape of South Africa. While doing so, the value of investigating differences across age bands for understanding aggressive behaviour was stressed. This research approach was adopted to address the following questions:

1. Is empathy associated with aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa?

2. Are there differences across age bands (i.e., child vs. young adolescent; qualitative comparison)?

Research Hypotheses

The role of empathy. Two studies were conducted to investigate the relationship between empathy (comprising Affective, Cognitive, and Affect Regulation components) and externalising aggressive behaviour in typically developing children and young adolescents living in the Western Cape of South Africa. Since the South African literature is limited to one study, hypotheses were informed by the available international literature. Furthermore, given the nature of our typically developing sample, hypotheses were informed by studies employing typically developing and clinical samples.

The following hypotheses regarding the role of empathy were made for both studies (i.e., child and adolescent samples):

1. Reduced Cognitive Empathy would likely be associated with increased Aggressive Behaviour.
2. Increased Affective Empathy would likely be associated with increased Aggressive Behaviour.
3. Poorer Affect Regulation would be associated with increased Aggressive Behaviour.
4. Affect Regulation would be the strongest correlate to Aggressive Behaviour when compared to Affective and Cognitive Empathy (i.e., of the three empathy components as conceptualised in this dissertation).

As can be seen, some predictions were made in terms of likelihood. While the precise roles of Affective and Cognitive Empathy are less clear, predictions regarding the role of Affect Regulation are more definite. Additionally, given few studies employing child samples, the predictions for children and adolescents are identical. The relationships regarding the role of Affective and Cognitive Empathy, however, have more consistently been found in adolescent than in child samples. I therefore expected that the hypothesized relationships between Affective and Cognitive Empathy and Aggressive Behaviour were less likely in children.

The role of other contextual factors. All of the other factors included as potential correlates have been previously found to be associated with empathy and/or aggressive behaviour. I therefore expected that several of these variables would be associated with

Aggressive Behaviour. However, only two specific predictions were made, given the limited South African literature. I hypothesized that:

1. Lower SES would be associated with increased Aggressive Behaviour.
2. Negative Parenting Style would be associated with increased Aggressive Behaviour.

Differences in correlates across age bands. Given that behaviour is differentially determined across age, it is reasonable to expect differences in correlates of Aggressive Behaviour across age bands. In terms of empathy, as Cognitive Empathy and Affect Regulation (i.e., the two higher-order components of empathy) are expected to develop with age, differences in the role of Cognitive Empathy and Affect Regulation as correlates were expected across age bands. These differences were not compared statistically in this dissertation but rather by comparing findings across the two age bands qualitatively. In terms of other factors, there is ample evidence to indicate that other factors are differentially associated with Aggressive Behaviour across age. Furthermore, while empathy is something that needs to be regulated (hence the Affect Regulation component) behaviour also needs to be regulated, whether by internal or external factors. However, since the ability to empathise is more developed in young adolescents (i.e., Cognitive Empathy and Affect Regulation), I expected that younger children may then rely on external sources of regulation of behaviour more than adolescents who are able to self-regulate. I therefore hypothesized that:

1. The role of Empathy would differ across age bands; I expected that components of empathy would play a larger role in aggressive behaviour in the young adolescent samples (Study 1) than in the child sample (Study 2).
2. The role of other factors would differ across age bands; I expected that both internal and external factors would be associated with aggressive behaviour in the young adolescent samples, while external factors were more likely to be associated with aggressive behaviour in the child sample than internal factors.

Note that investigating differences across age bands was a secondary goal of this research. The primary goal was to investigate the correlates of aggressive behaviour in children (Study 2) and young adolescents (Study1), with specific focus on the role of empathy as correlate. Differences in correlates across age are discussed by qualitatively comparing findings across the two studies. Establishing developmental differences requires a longitudinal study design, which this dissertation did not employ.

Significance of this Dissertation

The significance of this dissertation should be apparent. To summarize, aggression and violence is a major social problem, and is escalating in school-going children and young adolescents living in the Western Cape of South Africa. The route to reducing or preventing such behaviour is via an understanding of the factors that play a role in aggressive behaviour – what they are, and how they do so. Internationally, empathy is considered an important construct in explaining such behaviour. Since behaviour is context-specific, it is important that the role of empathy be investigated across contexts. Only one published study, however, has investigated the relationship between empathy and aggressive behaviour in the South African context to date. Furthermore, numerous other contextual factors have been identified as significant correlates of aggressive behaviour in the international context. The knowledge base in South Africa, however, is very thin. As such, this dissertation offers original theoretical contributions to the knowledge base of correlates of aggressive behaviour in the South African context of typically developing coloured children and young adolescents living in the Western Cape, with specific focus on the role of empathy.

Furthermore, while it is widely accepted that deficiencies in empathy are associated with aggressive behaviour, a clear understanding of this relationship is undermined by theoretical and methodological flaws, which have resulted in mixed findings. In other words, international research findings have been undermined by the investigatory approach. The research approach employed in this dissertation addresses several theoretical and methodological flaws of previous studies. In addition to this, it draws attention to the value of investigating differences in correlates of aggressive behaviour across age bands by including both child and young adolescent samples. In doing so, this dissertation offers theoretical contributions to national literature as well as international literature. Most importantly, these theoretical contributions have practical value as well as they have the potential to inform intervention aimed at the reduction and prevention of aggressive and violent behaviour. In the Western Cape of South Africa, as in many other countries, the practical implications are of great value.

CHAPTER FIVE.

METHODS: STUDY 1 AND STUDY 2

In Chapter Five I describe participant characteristics and methods applicable to both Study 1 and Study 2. The measures employed (aside from one) and procedures followed were identical across studies.

Research Design

The overarching goal of this dissertation was to investigate the correlates of aggressive behaviour in typically developing coloured children and young adolescents living in the Western Cape of South Africa, with particular focus on the role of empathy. A cross-sectional correlational design was employed to do so. Empathy was conceptualised as comprising an Affective, a Cognitive, and a Affect Regulation component (see Chapter Two; Decety, 2011) and aggressive behaviour was operationalised as externalising behaviours (i.e., rule-breaking and aggressive behaviours as measured by the externalising subscale of the Child Behaviour Checklist; Achenbach & Rescorla, 2001). Furthermore, while the primary focus of this dissertation was to investigate the relationship between empathy and aggressive behaviour, an ecologically valid understanding of this relationship required the concurrent investigation of other contextual factors (Bronfenbrenner, 1979). The role of empathy was therefore examined while concurrently investigating the role of several other factors which have previously been associated with empathy and aggressive behaviour, namely age, gender[8], general intellectual functioning (intellectual functioning, attention, working memory), parenting style, parent empathy, child attachment style, and socioeconomic status. Two studies were conducted to investigate the relationship between empathy and aggressive behaviour in young adolescents (Study 1) and children (Study 2). A qualitative comparison across age bands (i.e., Study 1 vs. Study 2) allowed for the investigation of possible differences in this role (i.e., children vs. young adolescents).

[8] Note that I did not measure gender, nor did I measure biological sex; I used a measure of *reported* biological sex. However, to use the term sex would be misleading, as I was investigating several variables which are associated with gender construction. Most notable are my two key variables (i.e., Empathy and Aggressive Behaviour). Furthermore, the *reported* biological sex can be expected to be associated with gender, as what the caregiver reports may well inform their interactions with the child. Therefore, while neither *gender* nor *sex* is the ideal term to employ, I use the term *gender*.

Study 1. Study 1 examined the relationship between empathy and aggressive behaviour in a sample of young adolescents aged 11 to 13 years (N = 160). It consisted of two phases (n = 80 per phase). In Phase 1, informed largely by previous literature, model building analyses (hierarchical regression analyses) were utilized: empathy and several other factors associated with both empathy and aggressive behaviour (mentioned earlier) were included as potential correlates of aggressive behaviour. In Phase 2, I investigated whether the final model identified in Phase 1 would be replicated in a sample of demographically equivalent young adolescents (i.e., matched on age, gender, and SES). Following Phase 2 analyses, path analyses was utilized (for the full sample, N = 160) as some questions were not adequately answered by the regression analyses.

Study 2. Study 2 examined the relationship between empathy and aggressive behaviour in children aged 6 to 8 years (n = 76). Aside from age, these children were demographically equivalent to the young adolescents who participated in Study 1 (i.e., matched on gender and SES). Model building analyses were utilized as in Phase 1 of Study 1 to identify the model of best fit for this child sample.

Child tasks, parent-report of child behaviour, parent-report of their own behaviour, as well as direct observation of child behaviour were employed. Both child and parent sessions took place at the various schools participating in the current research. A quiet room free of distractions was used as the setting.

Participants

A total of 236 typically developing coloured children (n = 76) and young adolescents (n = 160) and their parents/primary caregivers[9] (i.e., participant pairs) participated in the current research. Children were recruited from three public mainstream primary schools in Cape Town (situated in the Western Cape of South Africa). Stratified and purposive sampling was employed to ensure that child participants were systematically varied in terms of age, gender, and SES (school was used as proxy for SES during recruitment) (see Appendix A).

Study 1. One hundred and sixty coloured young adolescents (n = 160, age range 11-13 years) and their parents participated in Study 1. Eighty of these participant pairs participated in Phase 1 (i.e., the model building phase), and the remaining 80 in Phase 2 (i.e.,

[9] Note that only one parent/primary caregiver completed questionnaires about their child and themselves. The majority of these were female/mothers. For the most part primary caregivers were parents. However, other family members such as grandparents and aunts/uncles also acted as primary caregivers in several instances. I use the term *parent* throughout for the sake of consistency. The term *child/children*, unless otherwise stated, is used interchangeably with *young adolescents*.

the replication phase). The overall group (n = 160) was not randomly divided into two samples; rather, they were matched on age, gender, and SES. Adolescents in Phase 1 were therefore demographically equivalent to those in Phase 2 (see Figures 15 and 16 in Appendix A). All adolescent participants were recruited from Grades 5, 6, and 7.

Study 2. Seventy-six coloured children (n = 76, age range 6-8 years) and their parents participated in Study 2. Aside from age, child participants in Study 2 were demographically equivalent to young adolescent participants in Study 1 (see Figures 13, 14, and 15 in Appendix A). Only children in Grades 1 and 2 were recruited. Note that the initial sample size was 80 – to match Study 1 sample sizes. However, for reasons pointed out below, data of four children and their parents were excluded from analyses.

Inclusion and exclusion criteria[10]**.** As previously stated, the escalation of school-based violence in primary and secondary schools in the Western Cape of South Africa, particularly in the form of gang-related incidents, is cause for much concern (Burton, 2008; Pinnock, 2016; SACE, 2011; van Wyk & Theron, 2005). Given the long history of gangsterism in certain coloured communities (Pinnock, 2016), coloured children and young adolescents were included. Furthermore, since girls are increasingly being recruited into gangs and all-girl gangs are on the increase (Joe & Chesney-Lind, 1995; Ward, 2007a), both male and female children and young adolescents were included. In addition to this, to keep the sample as homogenous as possible, only children receiving their schooling in English, and whose home language was either English, Afrikaans or both, were included.

Additional information necessary for determining exclusion was obtained through completion of a demographic questionnaire. A history of head injury (with loss of consciousness experienced), infantile meningitis, and/or a diagnosed neurological condition/s (e.g., epilepsy) ensured exclusion. Children with a history or diagnosis of a pervasive developmental disorder and affective disorders, and/or behavioural disorders such as oppositional defiant disorder or conduct disorder were also excluded. These diagnoses ensured exclusion as they are associated with (1) non-typical cognitive functioning, (2) the use of medication which could affect cognitive functioning, and/or (3) clinically significant aggressive behaviour as diagnostic criteria; in other words, these individuals would be described as non-typically developing. Furthermore, those diagnosed with attention-deficit/hyperactivity disorder (ADHD) were included given high prevalence rates of this

[10] These criteria apply to both studies.

diagnosis. However, only children who were not taking ADHD medication were included as medication could alter cognitive functioning and behaviour.

No participant pairs were excluded from Study 1. Two boys previously diagnosed with ADHD but not taking medication were included in the Phase 1 sample, while one boy previously diagnosed with ADHD but not taking medication was included in the Phase 2 sample. Four participant-pairs were excluded from Study 2, as the four children were taking ADHD medication at the time of assessment, while one boy previously diagnosed with ADHD but not taking medication was included in Study 2.

Ethical Considerations

This dissertation followed the guidelines for research with human subjects as outlined by the Health Professions Council of South Africa and the University of Cape Town (UCT) Codes for Research. It formed part of a broader research project which had approval from UCT's Department of Psychology, and was also granted permission by the Western Cape Education Department to recruit participants from public schools within their jurisdiction (Appendix B). Permission was subsequently obtained from the schools involved to approach their students and parents to participate in the research, as well as to use their premises for assessment purposes. Study information and parental consent forms as well as demographic questionnaires (Appendices C and D, respectively) were then sent to parents via their children. Parents then provided written informed consent for their and their children's participation, and child participants provided assent to participate on the day of testing (Appendix E).

The research was initially explained to parents in writing (study information sent out via children), where contact details of the principal investigator were provided allowing for an opportunity for any additional questions to be asked prior to consent. The research was also explained to parents verbally on the day of the parent session at school, where they were once again given the chance to ask questions about the research. Children were also informed about the research in writing and verbally. Before assessment commenced, on the day of the first of two sessions, the research was explained to the child by the researcher. This information was furthermore provided on an assent form should the child be able to and/or wish to read it. Children were also afforded an opportunity to ask questions should he/she wish to do so. Every effort was made to ensure that both parent and child participants understood what they were consenting/assenting to before the sessions commenced.

Parents were furthermore assured that all data would be kept confidential and be used for research purposes only. Data would be stored electronically on the principal investigator's password-protected computer. Participants would be assigned a unique code, and no name would be stored with the electronic data files. Furthermore, no participant names or identifiable information would be used in publications.

In addition to this, participants were made aware of the risks and benefits of participation. While participants (both parent and child) were not exposed to any risk, they were allowed to rest (e.g., between tasks, during questionnaire completion) if they experienced fatigue at any point, and were informed that they could withdraw from the study at any point without negative consequence. They could also choose not to answer certain questions. In terms of benefits, parents were made aware that they would receive R100[11] upon completion of all questionnaires and that their child would receive sweets and stickers of their choice for their participation. Furthermore, should any behavioural or learning difficulties be identified, feedback would be provided as well as referrals to appropriate service providers where necessary. Children were also made aware of the stickers and sweets they would receive for their participation. Participants were thanked for their participation after each session. Finally, feedback regarding findings was provided to participating schools subsequent to completion of research.

Measures

A multi-method, multiple informant approach is encouraged to more accurately and comprehensively measure constructs such as empathy and behaviour (Joliffe & Farrington, 2004; Lovett & Sheffield, 2007; MacGowan, 1999). Furthermore, contrary to common practice, employing multiple measures of empathy has been encouraged (Schaffer et al., 2009). Consequently, I employed techniques in multiple domains (i.e., social development, cognitive development), using multiple methods (i.e., experimental tasks, questionnaires, direct observation) and multiple informants (i.e., child self-report, parent-report, investigator-report) to measure empathy. Additionally, as far as possible, I employed measures of empathy that have been shown to be most appropriate for the South African context.

All child measures were administered to all child participants and all parent measures to all parents. Child measures included two measures of each component of empathy (i.e., affective, cognitive, affect regulation): Each component was measured via the child

[11] This study formed part of a broader research project, namely the Cross-Cultural Moral Development Project, funded by the Templeton Foundation. Parents were compensated as stipulated by this project.

completing a task (i.e., child task) as well as a parent-report measure of child empathy (i.e., parent-report of child empathy questionnaire). Parent measures included only self-report measures of each component of empathy, and therefore only one measure of each. General measures are discussed first, followed by child measures, and finally parent measures. Table 1 provides a summary of the empathy measures employed in this dissertation and Table 2 provides a summary of the other measures employed.

Table 1

Summary of Empathy Measures

Measure	Domain Assessed
Child measures of child empathy	
Chicago Empathy for Pain Task	Affective empathy (i.e., affective sharing)
UCT Theory of Mind Battery	Cognitive empathy (i.e., Theory of Mind)
Snap Game	Affect Regulation (i.e., affect regulation)
Parent measures of child empathy/Parent measures of parent empathy [a]	
Questionnaire of Cognitive and Affective Empathy	Affective empathy (i.e., dispositional affective empathy)
	Cognitive empathy (i.e., dispositional cognitive empathy)
Affect Regulation Checklist	Affect Regulation (i.e., affect regulation style)

[a] Parents completed two versions of the Questionnaire of Cognitive and Affective Empathy and Affect Regulation Checklist - one for their child and one self-report version.

Table 2

Summary of Other Measures

Measure	Domain Assessed
General measures	
Demographic Questionnaire	Basic demographic information
WASI (Two-subtest form)	General intellectual functioning
WISC-IV (Digit Span Task)	Attention and working memory
Additional child measures	
Attachment Style Classification Questionnaire	Attachment style
Child Behaviour Checklist (Externalising subscale)	Externalising behaviour
Parent measures	
Alabama Parenting Questionnaire (Short-form)	Parenting style

Note. WASI = Weschler Abbreviated Scale of Intelligence. WISC = Weschler Intelligence Scale for Children.

General measures. ***Basic demographic information*****.** Parents completed a basic demographic questionnaire asking a relatively standard series of demographic questions (Appendix D). Topics covered included age, home language, number of siblings, maternal and paternal education, family structure, and family income. This questionnaire also included questions necessary for identification of participants who met specific exclusion criteria, such as questions related to medical history and use of medication.

Socioeconomic status (SES). During recruitment, school was used as proxy for SES. Child participants were recruited from three schools in Cape Town, each of which was associated with a different socioeconomic bracket (i.e., School A = low, School B = low to middle, School C = middle to high). This categorization was partially informed by the quintile system employed by the education department in South Africa whereby schools are categorized depending on resources available to the school as well as to its students (Western Cape Education Department (WCED), 2016). Quintiles 1 through 3 are classified as under-resourced schools, receive government funding for resources, and generally have a no-fee policy, while schools in quintiles 4 and 5 are classified as adequately resourced and students are expected to pay school fees. The goal of the quintile system is to improve the quality of education provided in poorer communities as well as the accessibility to education.

School A was classified in quintile 4, which by definition should not receive funding. However, many students at this school do not pay school fees as they cannot afford to, and are subsidized by the government. This is not uncommon, as many schools in the Western Cape classified in quintile 4 and 5 are attended by a substantial number of students whose parents cannot afford to pay school fees (Shelver, 2016). School A was heavily dependent on

the government paying school fees and received additional funding, making it more accurate to classify this school in quintile 3. School B was classified in quintile 5. However, in School B, while the majority of students pay school fees, there are a number of students who cannot afford to pay school fees and rely on government funding their attendance. This school was also recently rebuilt by government funding, indicating the need for additional resources, which suggests that a quintile 5 rating is too high for School B. Finally, School C was classified in Quintile 5. This school does not receive government funding, and all children pay school fees.[12]

For purposes of data analyses, a standardized composite index was subsequently calculated to estimate participants' SES (i.e., to assess the variation in SES among participants). This composite score was calculated from three indices, namely (1) total yearly household income, (2) mother's highest level of education (HLOE), and (3) material and financial resources (i.e., items and/or facilities that might be found in the household ranging from basic necessities, such as running water in the house, to more expensive luxuries such as owning a car; Booysen, 2001). Where no mother's HLOE was indicated, the primary caregiver's HLOE was used. This information was obtained from the basic demographic questionnaire (see Appendix D). To start with in analyses, a composite measure of SES was utilized instead of a single monetary indicator. This decision was based on research indicating that in developing countries such as South Africa a measure of SES that takes into account various indicators of SES (i.e., a composite measure) would more adequately capture variation in socioeconomic position (Barnes et al., 2007; Booysen, 2001; Cooper et al., 2012; Myer et al., 2008).

General intellectual functioning. The Two-subtest form of the *Wechsler Abbreviated Scale of Intelligence* (WASI; Wechsler, 1999) was employed as a measure of general intellectual functioning. The WASI is a standardized and robust measure of general intellectual functioning, normed for individuals between the ages of 6 and 89 years. It is comprised of four subtests, namely Vocabulary, Block Design, Similarities, and Matrix Reasoning. The Vocabulary and Similarities subtests tap into Verbal IQ, while the Block Design and Matrix Reasoning subtests tap into Performance IQ. Only the Vocabulary and Matrix Reasoning subtests, which constitute the Two-subtest form, were administered to obtain an estimate of general intellectual functioning.

[12] Information regarding the respective schools receiving funding and payment of school fees was gained from personal communication with the school principals. Personal communications were not referenced in-text to retain school anonymity.

The Two-subtest form of the WASI provides only a measure of full scale IQ and cannot be used to comment on verbal or performance components (Ryan et al., 2003). The Vocabulary subtest is a good measure of crystallized intelligence, while the Matrix Reasoning subtest is a measure of non-verbal fluid reasoning. The major advantage of this abbreviated version of the WASI is that it allows for quick administration, while still being able to provide an estimate of general intellectual functioning (Psychological Corporation, 1999; Strauss, Sherman, & Spreen, 2006). Given the number of tests each participant had to complete, this 15 minute estimate of general intellectual functioning was preferred over the 4 subtest 30 minute version. The Two-subtest form of the WASI was therefore ideal for the purposes of this dissertation: a brief estimate of general intellectual functioning.

Note that the WASI was not developed in South Africa and has not been normed for the South African population (i.e., it has been normed for Western populations). The WASI as well as the Two-subtest form of the WASI have reliably been used in clinical, educational, and research settings in studies conducted outside of South Africa (Weschler, 1999). The WASI has also been used in a variety of clinical and research settings in South Africa despite the paucity of normative data (Ferret, 2011; van Wyhe, 2012). Since child participants were to be compared only to their demographically equivalent peers, interpretation of the results was not to be affected by the lack of local normative data.

Attention and working memory. The *Digit Span subtest* of the fourth edition of the *Wechsler Intelligence Scale for Children* (WISC-IV UK; Wechsler, 2004) was employed as a measure of verbal attention (i.e., digit span forward) and working memory (i.e., digit span backwards). It is a reliable measure of working memory (i.e., to hold new information in short-term memory and manipulate that information) and attention (Conway et al., 2005), normed for children aged 6-16 years. As with the WASI, the WISC was not developed in South Africa or normed for the South African population, but this would not affect interpretation of results as child participants were to be compared only to their demographically equivalent peers,

Measures of child empathy. ***Child tasks.*** *Affective sharing (Affective Empathy).* The *Empathy for Pain Task* was employed to measure the ability to viscerally share another person's feelings (i.e., Affective Empathy). This task has been previously employed in several studies to measure affective sharing as well as empathic concern (for examples, see Akitsuki & Decety, 2009; Decety, Michalska, & Akitsuik, 2008; Decety, Skelly, & Kiehl, 2013; Moriguchi et al., 2007). In terms of the conceptualisation of empathy employed in this

dissertation, the Empathy for Pain Task served as a child measure of the affective component of child empathy.

The Empathy for Pain task is a computer-based task where participants are shown 18 analogous pictures that either depict pain (e.g., a hand being caught in a closing door) or no pain (e.g., a hand next to a closing door). Children are then asked two questions for each scenario, namely "How much pain is the person in the picture experiencing?", and "How sorry do you feel for the person in the picture?" Scores range from "no pain to "lots of pain" (question 1) and "not bad" to "very bad" (question 2). The child responds via a visual analogue scale which is then transformed into a score ranging from 0 to 100. The picture stimuli were developed and validated by Jackson, Meltzoff, and Decety (2005). All pictures are appropriate for children as young as 3 years, and have been taken from situations children readily observe in every-day life (see Figure 4 for two examples).

Question 1 can be considered a measure of affective sharing (i.e., the ability to viscerally share another person's affective state), as those who have designed the task stipulate (Jackson et al., 2005). It was therefore used as an indicator of Affective Empathy. Question 2, on the other hand, can be considered a measure of empathic concern. For the purposes of this study, only the affective sharing component of the task was considered (Question 1), as Question 2 taps into empathic concern, which does not fit into the framework for empathy utilized in this dissertation (Decety, 2011; Decety & Jackson, 2004; Decety & Meyer, 2008; Decety & Moriguchi, 2007). No research has yet employed the Empathy for Pain Task in South Africa. Given the cultural-neutrality of the images presented, however, it seems reasonable to expect that this task would be appropriate for use in the South African context.

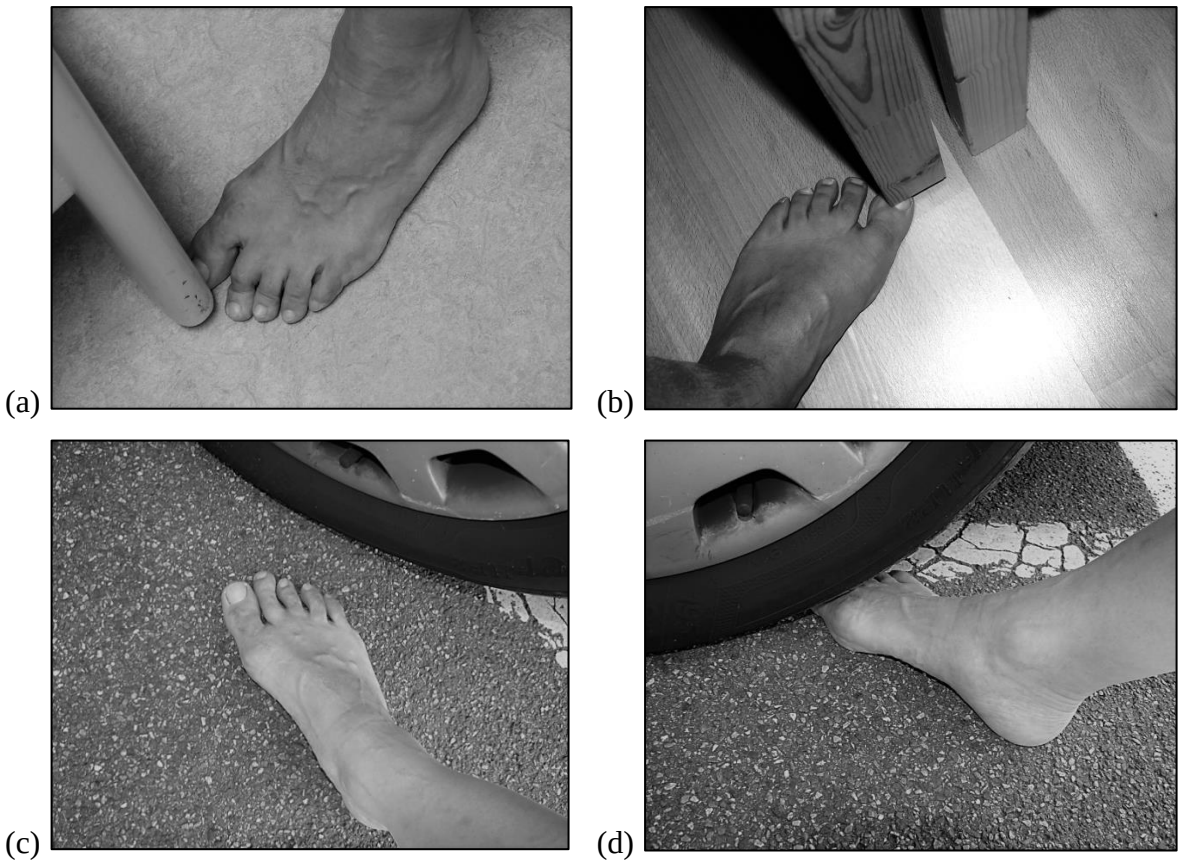

Figure 4. Examples of Empathy for Pain Task stimuli. (a) and (b) depict a toe next to a chair (no pain) vs. a toe caught under a table (pain). (c) and (d) depict a foot next to a car wheel (no pain) vs. a foot caught under a car wheel (pain).

Theory of Mind (Cognitive Empathy). The *University of Cape Town (UCT) Theory of Mind (ToM) Battery* was employed to measure ToM (i.e., recognizing mental states in others, and understanding that others can "know, want, feel, or believe things" (Baron-Cohen et al., 1985, p. 38; Premack & Woodruff, 1978)). In other words, it measured the ability to understand another's feelings on a cognitive level (i.e., Cognitive Empathy). In terms of the conceptualisation of empathy employed in this dissertation, the UCT ToM Battery served as a child measure of the cognitive component of child empathy.

The UCT ToM Battery consists of 11 tasks divided into 4 modules of increasing difficulty (i.e., Early, Basic, Intermediate, Advanced). This battery, developed by Hoogenhout and Malcolm-Smith (2014), was initially adapted from Steel and colleagues' (2003) work, and includes frequently used ToM tasks (e.g., Baron-Cohen et al., 1985; Happé, 1995; Steele, Joseph, & Tager-Flusberg, 2003; Wellman, Cross, & Watson, 2001; Wellman & Woolley, 1990).

The Early module includes assessment of the ability to engage in pretend play, understanding of other's desires and beliefs, and the ability to know that a character obtains knowledge from visual cues. The Basic module includes an assessment of the classic Location-change first-order false belief task (Baron-Cohen et al., 1985; Wimmer & Perner, 1983), the Unexpected-contents false belief task (Perner, Leekam, & Wimmer, 1987), and the Explanation of action task. In the Unexpected-contents false belief task participants are shown a familiar container with unexpected contents inside and are then asked what they thought was in the container before they saw inside, and what do they think someone else will think is in the box when they see it for the first time closed up. In the Explanation of action task participants were read 12 stories, and are then asked why the character/s in the story acted in the way portrayed. Stories included actions based on emotion, desire, cognitive process (think, know, or forget) or a non-mental event.

The Intermediate module was comprised of two tasks, namely the Second-order false belief task (Ozonoff & McEvoy, 1994) and the Strange stories task (Happé, 1994). The Second-order false belief task tested the knowledge of a character's beliefs about a second character's beliefs, whereas the Strange stories task asked of the participant to differentiate between control stories, and when someone is telling a lie/white lie, pretend, double-bluff, persuasion, forgetting, misunderstanding, figure of speech, appearance-reality, irony and contrary emotions. Finally, the Advanced module included assessment of the ability to recognize faux pas, sarcasm, and irony.

Participants started with the module most appropriate for their age/developmental level (based on international literature), and received full credit for those modules before their starting point. Six to 8 year olds started with the Basic module while 11 to 13 year olds started with the Intermediate module. Participants proceeded to the subsequent module/s until they failed a module or completed the battery. Each task asked questions pertaining to ToM (i.e., test questions) as well as control questions to ensure that comprehension was not influencing test question results. Test and control question scores were totalled separately for each task. If a participant obtained less than half of the maximum score on their starting battery (for either control or test questions), they were tested on the previous battery. This procedure ensured that the duration of the assessment was as short as possible, while still obtaining a reliable measure of ToM ability. Theory of Mind total scores (i.e., test scores) for all tasks completed as well as those for which participants received full credit were summed, and this overall score was used as an indicator of ToM. This battery was found to be appropriate for a South African context (Hoogenhout & Malcolm-Smith, 2014).

Affect regulation (Affect Regulation component of empathy). The *Snap Game* was employed as a measure of affect regulation. This task was developed at the University of Cape Town and piloted in 2013. Changes were made in 2014 after piloting, and the adapted version was employed in this dissertation. In terms of the conceptualisation of empathy employed in this dissertation, the Snap Game served as a child measure of the affect regulation component of child empathy.

Children play a simple card game (called Snap) designed to induce frustration in the child. At the outset, the cards are split equally between child and experimenter, and are held face down. The experimenter then demonstrates how the game works: The experimenter places one card down (face up) and then instructs the child to do so. They make turns to place a card down until two cards with the same face value are placed on top of each other. At this point the experimenter puts her hand down on top of the cards and says "Snap!" The experimenter then explains to the child that the objective of the game is to be the first person to put down their hand and say "Snap" when two cards with the same face value are placed on top of each other. The child is then told that he/she will receive a sweet every time he/she wins a hand, but that the experimenter wins a sweet every time she wins a hand. The person who has the most sweets once the entire deck of cards has been played is the winner. The cards are, however, set in a sequence of which the experimenter is aware, therefore leading to the experimenter winning most of the time (>70%). Additionally, when the experimenter wins, she always says "I won!" thereby pointing out to the child that he/she lost. Together, this sets up a scenario where the child is likely to feel frustrated.

After the game, the child is asked to respond via a visual analogue scale which includes anchors of "not at all", "a little", and "a lot" in an effort to capture the emotions the child was experiencing (Appendix F). Examples include "How angry/frustrated did you feel?" and "How much did you want to yell at someone?" One experimenter then rated, based on overt behaviours noted during the game, to what extent she observed what the child reported to have felt. For example, "How angry/frustrated did you feel?" would be informed by observations such as grunting, a clenched jaw, and the expression of anger on the child's face. Scoring was done by comparing the child's report of his/her internal feelings and the experimenter's rating of overt behaviours representing these feelings. To illustrate, if a child reported that he/she felt a lot of anger/frustration but the experimenter did not observe any overt expression of this, the score would represent adaptive regulation. If the child reported that he/she felt a lot of anger/frustration and the experimenter observed evidence in keeping with this, the score would reflect a lack of regulation. A higher score for the Snap Game

translated into better regulation of emotions (i.e., more adaptive/better regulation of frustration).

Parent-report of child measures. *Dispositional affective and cognitive empathy (Affective and Cognitive Empathy).* The *Questionnaire of Cognitive and Affective Empathy* (QCAE; Reniers, Corcoran, Drake, Shryane, & Völlm, 2011) is a self-report questionnaire designed to measure dispositional empathy, both affective and cognitive components. A modified parent-report of child version was employed to obtain a measure of child dispositional affective empathy as well as child dispositional cognitive empathy (Appendix G). The QCAE (parent-report of child) served as a parent-report measure of the affective and cognitive components of child empathy in this dissertation, respectively.

The QCAE was adapted from several previously validated and widely used empathy questionnaires (see Baron-Cohen, Richler, Bisarya, Gurunathan, & Wheelwright, 2003; Davis, 1980; Eyesenck & Eyesenck, 1978; Hogan, 1969). This questionnaire consists of 31 statements to which the parent provides a yes or no response, with 4 response options: strongly disagree, slightly disagree, slightly agree, and strongly agree. These statements tap into either affective empathy (e.g., "My child gets very upset when she/he sees someone cry") or cognitive empathy (e.g., "My child finds it easy to put himself/herself in somebody else's shoes"). Statements therefore tap into either the child's affective capacity to *feel* what others are feeling or the cognitive capacity to *understand* what others are feeling.

The QCAE (self-report version) has been established as a reliable and valid measure of both affective dispositional empathy and cognitive dispositional empathy (Lockwood, Seara-Cardoso, & Viding, 2014; Reniers et al., 2011). Furthermore, the modified parent-report version has demonstrated high internal consistency reliability in a South African sample (overall: $\alpha = 0.95$; cognitive: $\alpha = 0.94$; affective: $\alpha = 0.88$; Louw, 2014). This questionnaire psychometrically outperformed the well-established Griffith's Empathy Measure (GEM; Dadds et al., 2008; commonly used in international literature) in a South African sample, and was therefore employed instead of the GEM.

Affect regulation (Affect Regulation component of empathy). The *Affect Regulation Checklist* (ARC; Moretti, 2003) is a self-report questionnaire designed to measure affect regulation style. A modified parent-report of child version was employed to obtain a measure of child affect regulation style (Appendix H). The ARC (parent-report of child) served as a parent-report measure of the affect regulation component of child empathy in this dissertation.

The ARC was adapted from previously published scales of emotion regulation (Gross & John, 2003; Shields & Cicchetti, 1997), and adopts a contemporary multidimensional view of affect regulation, tapping into three components of affect regulation namely dysregulation, suppression, and reflection. It therefore includes two maladaptive affect regulation styles (i.e., dysregulation and suppression) and one adaptive (i.e., reflection). This questionnaire consists of 12 statements to which the parent provides a yes or no response, with 3 response options: not like me, a little like me, a lot like me. These statements tap into either affect dysregulation (e.g., "It's very hard for me to calm down when I get upset"), affect suppression (e.g., "I try hard not to think about my feelings"), or affect reflection (e.g., "Thinking about why I have different feelings helps me learn about myself"). The final score reflects child regulatory style on a continuum ranging from maladaptive to adaptive.

The ARC (self-report version) has been established as a reliable and valid measure of the above three aspects of affect regulation, demonstrating satisfactory internal consistency reliability (Moretti & Craig, 2013; Penney & Moretti, 2010). To my knowledge, no data is yet available on a parent-report of child version, and no studies employing this measure in a South African sample have yet been conducted.

Other parent-report of child measures. ***Attachment style.*** The *Children's Attachment Style Classification Questionnaire* (ASCQ) is a self-report questionnaire designed to measure three attachment styles based on Ainsworth and colleagues' (1978) and Bowlby's (1969) work, namely secure, anxious ambivalent, and avoidant attachment style (Finzi, Cohen, Sapir, & Wiseman, 2000). A modified parent-report of child version was employed to obtain a measure of the child attachment style (Appendix I).

The Children's ASCQ was adapted from the Hebrew version (Mikulincer, Florian, & Tolmacz, 1990) of Hazan and Shaver's (1987) Attachment Style Classification Questionnaire for adults, and is suitable for children aged 6-13 years. This questionnaire consists of 15 statements to which the parent provides a response of not true, unsure, or true[13]. Five statements were concerned with secure attachment (e.g., "My child makes friends with other children easily"), five with anxious ambivalent (e.g., "My child sometimes feels like other children do not want to be friends with them"), and five with avoidant attachment style (e.g., "It's hard for my child to trust others, even if they are good friends of his/hers"). Each child was scored on a continuum ranging from secure to insecure. This continuous method was

[13]Note that the original child self-report version had children respond on a 5 point scale. We simplified as it was more difficult for parents to discriminate finely on their children's attachment styles.

employed to evaluate attachment style, as it has been argued that categorical measures cannot adequately capture variability in attachment styles (Fraley & Spieker, 2003).

The Children's ASCQ (self-report version) has been established as a reliable and valid measure of attachment style according to Ainsworth and Bowlby's work (Finzi et al., 2000; Finzi-Dottan, Manor, & Tyano, 2006; Schechory. & Sommerfeld, 2006). The psychometric properties of this measure are not yet known for a South African sample, however, as it has to my knowledge not been employed in research in South Africa.

Aggressive behaviour. The school-age version of the *Child Behavior Checklist* (CBCL; Achenbach & Rescorla, 2001) asks questions pertaining to a broad range of behavioural and emotional problems in individuals between the ages of 6 and 18 years. This questionnaire consists of two subscales (i.e., internalising and externalising). The parent-report version of the externalising subscale was used to operationalise *Aggressive Behaviour* (Appendix J).

The externalising subscale of the CBCL consists of 36 statements to which the parent provides a response of not true, sometimes or somewhat true, or very true or often true. These statements are related to rule-breaking and aggressive behaviours such as "My child argues a lot, "My child gets into fights", and "My child steals at home", for example.

The CBCL is widely-used internationally, and is recognised as having strong psychometric properties, reporting high reliability and validity in a range of societies. These include, for example, American samples (Achenbach & Rescorla, 2001), African countries such as Ethopia and Ghana (Ivanova et al., 2007), and other non-African countries such as Brazil and Germany (Roessner, Becker, Rothenberger, Rohde, & Banaschewski, 2007). Although the CBCL has not yet been formally validated in South Africa, it has been used in a range of South African studies (e.g., Barbarin et al., 2001; Cluver, Gardner, & Operario, 2007; Palin et al., 2009; Ward et al., 2015). Palin and colleagues (2009) reported strong internal consistency (α = .88) for the overall measure, and Malcolm-Smith and colleagues (2015) found that the externalising subscale yielded strong internal consistency in their sample of Western Cape children (α = .87).

As mentioned earlier in this dissertation, the externalizing subscale of the CBCL is widely-used and well-accepted, both nationally and internationally, as a measure of externalizing aggressive behaviour in young people (e.g., Barbarin et al., 2001; Cluver, Gardner, & Operario, 2007; de Wied et al., 2005; Ferguson, San Miguel, & Hartly, 2009; Palin et al., 2009; van Beijsterveldt, Bartels, Hudziak, & Boomsma, 2003; Ward et al., 2015). It has also previously been used in the one study which has investigated the relationship

between empathy and aggressive behaviour in South Africa (i.e., Malcolm-Smith et al., 2015). Using this subscale therefore enabled a comparison with other national and international findings.

Parent self-report measures. ***Parent empathy.*** *Dispositional affective and cognitive empathy (Affective and Cognitive Empathy).* Primary caregivers completed the original self-report version of QCAE (as described earlier). The QCAE (parent self-report) served as a measure of the affective and cognitive components of parent empathy in this dissertation, respectively.

Affect regulation (Affect Regulation component of empathy). Primary caregivers completed the original self-report version of the ARC (as described earlier). The ARC (parent self-report) served as a measure of the regulation component of parent empathy in this dissertation.

Parenting Style. A Short Form of the *Alabama Parenting Questionnaire* (APQ; Elgar, Waschbusch, Dadds, & Sigvaldason, 2007) was employed as a measure of parenting style (Appendix K). This parent-report measure is a brief and reliable measure of parenting practices, namely Positive Parenting, Inconsistent Discipline, and Poor Supervision, and is considered an informative tool for brief assessments of parenting practices related to behavioural problems in children (Elgar et al., 2007).

The Short Form of the APQ consists of 9 items to which the parent provides a response of never, almost never, sometimes, often, or always. Three statements tap into positive parenting (e.g., "You praise your child if he/she behaves well"), three inconsistent discipline (e.g., "You threaten to punish your child and then do not actually punish him/her"), and three poor supervision (e.g., "Your child fails to leave a note or let you know where he/she is going). As such, the Short Form of the APQ measures both negative and positive parenting practices. Parenting style was therefore scored on a continuum ranging from negative to positive.

The original 42-item APQ (Frick, 1991) and the Short Form APQ (Elgar et al., 2007) have demonstrated strong psychometric properties internationally (e.g., Clerkin, Marks, Policaro, & Halperin, 2007; Elgar et al., 2007; Essau, Sasagawa, & Frick, 2006). Furthermore, the APQ subscales have been considered useful to assess parenting practices that have been associated with behavioural problems such as aggression in young people (Dadds et al., 2003; Elgar et al., 2007; Hawes & Dadds, 2006; Shelton, Frick, & Wootton, 1996). The literature regarding the use of the APQ in South Africa, however, is limited. Both versions have yet to be formally validated for use in South Africa. The 42-item APQ

performed less than ideally in two South African studies (e.g., Madalane 2007; Ward et al., 2015). Firstly, Madalane (2007) findings indicated that the Positive Parenting, Inconsistent Discipline and Poor Supervision subscales performed best (albeit $\alpha < .70$), while Ward and colleagues' (2015) findings indicated that Positive Parenting subscale performed best ($\alpha = .87$) and that Inconsistent Discipline and Poor Supervision yielded α values of below .70 (exact values not given). The psychometric properties of the Short Form APQ are unknown, but given that the three subscales measured by the Short Form APQ performed somewhat better than the others for the most part in these two South African studies, it is possible that the Short Form APQ will perform better than the original 42-item APQ.

Procedure

General procedure. Parents provided written informed consent for both their and their child's participation before testing commenced. Parents furthermore completed a demographic questionnaire which included information necessary for identification of children who met any of the exclusion criteria. Children who met inclusion criteria were seen for two 35-50 minute sessions. Before sessions commenced, researchers involved in data collection (a research team) were trained on administration of all child tasks. Parents were contacted subsequent to their child's completion of both child sessions to arrange a meeting time for parent data collection (i.e., completion of questionnaires). Once all data had been collected, participating schools received feedback.

Child data collection. Written informed assent was obtained from the child on the first day of assessment. Children completed tasks as outlined in the *Measures* above over two one-on-one sessions with the researcher, run on separate days. Child participants completed all child-based measures, aside from the younger children (Study 2) who could not complete the *Snap Game*. During sessions children were allowed to rest if at any point they experienced fatigue, and also received stickers and sweets during certain tasks. Session 1 started with the Digit Span Task (Attention and Working Memory), followed by the Two-subtest form of the WASI (General Intellectual Functioning), and finally the Empathy for Pain Task (Affective Sharing). Session 2 started with the UCT ToM Battery (ToM) followed by the Snap Game (Affect Regulation). At the end of the second session each participant was thanked for participating.

Parent data collection. Parents completed questionnaires as outlined in the *Measures* above in the presence of the researcher to ensure that all questions were understood. The set of questionnaires took approximately 45-60 minutes to complete. Upon completion of all

questionnaires, they were compensated with R100 for their participation. They were thanked for participating, and received general feedback via their school.

Data Analysis

For both Study 1 and Study 2, descriptive analyses were conducted to characterise between-group differences (i.e., across Gender) in sample characteristics; chi-squared analyses were performed on the categorical data and independent samples *t*-tests were employed for the continuous data. Detailed bivariate analyses were utilized to further describe the data in terms of correlates of Child Empathy, and multiple regression analyses were subsequently utilized to investigate correlates of Aggressive Behaviour in young adolescents (Study 1) and children (Study 2). Unless otherwise stated, all assumptions underlying the various tests employed were upheld.

Some questions remained unanswered after Study 1 and Study 2 regression analyses. In particular, the differences across phases in Study 1 required further investigation as the importance of Child Cognitive Empathy, the role of SES, and the role of Parent Empathy was unclear. This is unsurprising given the nature of multiple regression analyses as it assumes that the relationship being modelled is linear and that several predictors combine additively. To further investigate these questions, Structural Equation Modelling (SEM) would be required to evaluate a system of regression equations simultaneously, allowing us to see direct and indirect associations between variables (Kline, 2011). Specifically, path analysis would allow for testing of the conceptual (theoretical) model as informed by previous literature and also bivariate and regression analyses conducted.

Statistical analyses were completed using PASW Statistics version 23.0 (SPSS, 2016). The Amos package (Arbuckle, 1997) was used for SEM analyses (i.e., path analyses). Overall a number of bivariate inferential analyses were conducted in Phases 1 and 2, resulting in an increased risk of Type 1 error. However, multiple regression analyses and path analyses were informed predominantly by theory and not findings from bivariate analyses. Bivariate analyses were only meant to add further insight into the nature of sample. In path analyses, making a Type 1 error to start with would ultimately not influence findings, as SEM would eliminate non-significant paths (e.g., via modification indices which recommend path elimination such as the Lagrange multiplier test; Kline, 2011). In this instance, being overly inclusive (i.e., Type 1 error) was favoured above being overly restrictive (i.e., Type 2 error) to start off with. Given all this, alpha was not adjusted and remained at the conventional .05 level.

Turning our attention to sample size –sample size was adequate for analyses. In terms of MRA, the 10:1 subject-to-variable ratio rule of thumb was met (i.e., 10 cases of data for each variable in the model), but analytical power would have benefitted from an increased sample size (Field, 2009). Not splitting samples (as I did) would have been beneficial. However, I decided to split Study 1 into 2 phases, thereby halving sample size in each and sacrificing some analytical power. This decision was made as it was deemed more important to demonstrate replicability of findings in an area of research which has not previously been conducted in South Africa. As the sample size to number of variables ratio was just met in multiple regression analyses, both R^2 and *Adjusted* R^2 values are presented, and change in *Adjusted* R^2 is reported unless otherwise stated.

Post-hoc path analyses were limited by sample size to some extent. Consequently, path analyses were conducted only with the entire young adolescent sample (n = 160), which was sufficient for analytical power. It did, however, prevent further analyses. For one, I could not investigate gender differences in the young adolescent sample. Post-hoc path analyses were also not possible given the small sample of children in Study 2.

Study 1. Study 1 investigated the role of Child Empathy as a correlate of Aggressive Behaviour in young adolescents while concurrently investigating the role of several variables known to be associated with Child Empathy and Aggressive Behaviour. Analyses were conducted in two phases. Phase 1 was a model building phase informed by previous theory. I tested the hierarchical model presented below in a step-by-step fashion (see Figure 5) in a sample of 80 young adolescents. Variables that added significant change in explanation were retained in the model. Those variables which were investigated as part of an interaction were retained until interactions were assessed, regardless of individual contributions. In Phase 2, I attempted to replicate findings from Phase 1 by testing whether the final model identified in Phase 1 would hold for a second sample of demographically equivalent young adolescents (also n = 80).

Study 2. Study 2 investigated the role of Child Empathy as a correlate of Aggressive Behaviour in children while concurrently investigating the role of several variables known to be associated with Child Empathy and Aggressive Behaviour. A second goal was to shed some light on possible differences in empathy as correlate across age bands (via qualitatively comparing Study 1 and Study 2 findings). As in Phase 1 of Study 1, I tested the hierarchical model presented in Figure 5 in a step-by-step fashion to build a model that would best explain Aggressive Behaviour in a sample of young children (n = 76). Again, only variables that added significant change in explanation were retained in the model, and only those variables

which were investigated as part of an interaction were retained until interactions were assessed, regardless of individual contributions. Aside from age, these young children were demographically equivalent to the Study 1 samples.

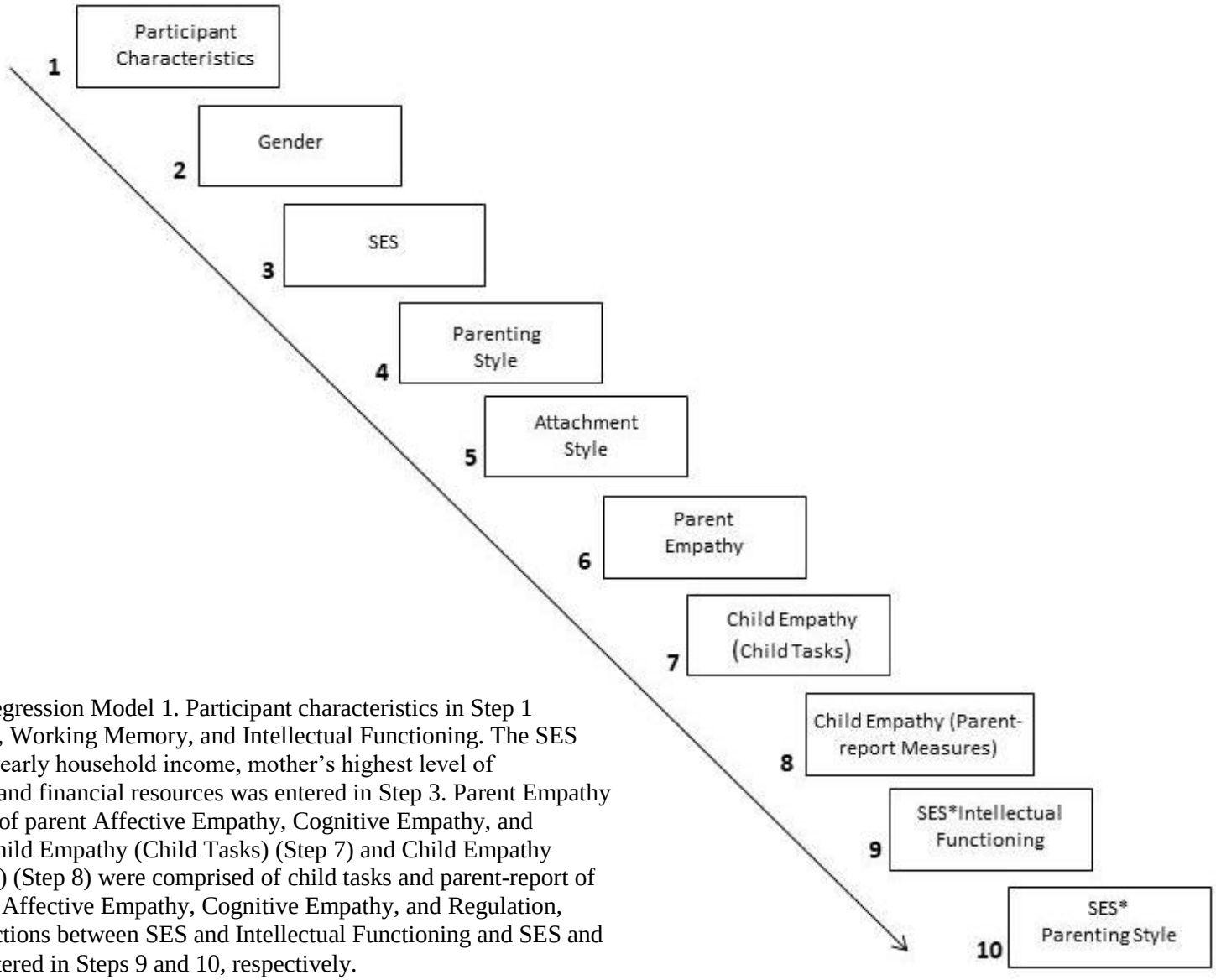

Figure 5. Hierarchical regression Model 1. Participant characteristics in Step 1 included Age, Attention, Working Memory, and Intellectual Functioning. The SES index comprising total yearly household income, mother's highest level of education, and material and financial resources was entered in Step 3. Parent Empathy (Step 6) was comprised of parent Affective Empathy, Cognitive Empathy, and Regulation measures. Child Empathy (Child Tasks) (Step 7) and Child Empathy (Parent-report Measures) (Step 8) were comprised of child tasks and parent-report of child measures of child Affective Empathy, Cognitive Empathy, and Regulation, respectively. The interactions between SES and Intellectual Functioning and SES and Parenting Style were entered in Steps 9 and 10, respectively.

Post-hoc path analyses: Study 1 sample. As post-hoc analysis to previous regression analyses, Path Analysis was utilized to investigate the sequenced associations of Child Empathy and several contextual variables on Aggressive Behaviour in young adolescents. Informed by theory and Study 1 bivariate and regression analyses, a theoretical (conceptual) model was specified and tested (the base path specified and tested is presented in Figure 6). At the outset, Parent and Child Empathy components were grouped respectively[14], and once a final model of best fit was identified, these two empathy variables were deconstructed into their constituent components and a second set of path analyses were conducted (the base paths specified with deconstructed empathy is presented in Figure 7).

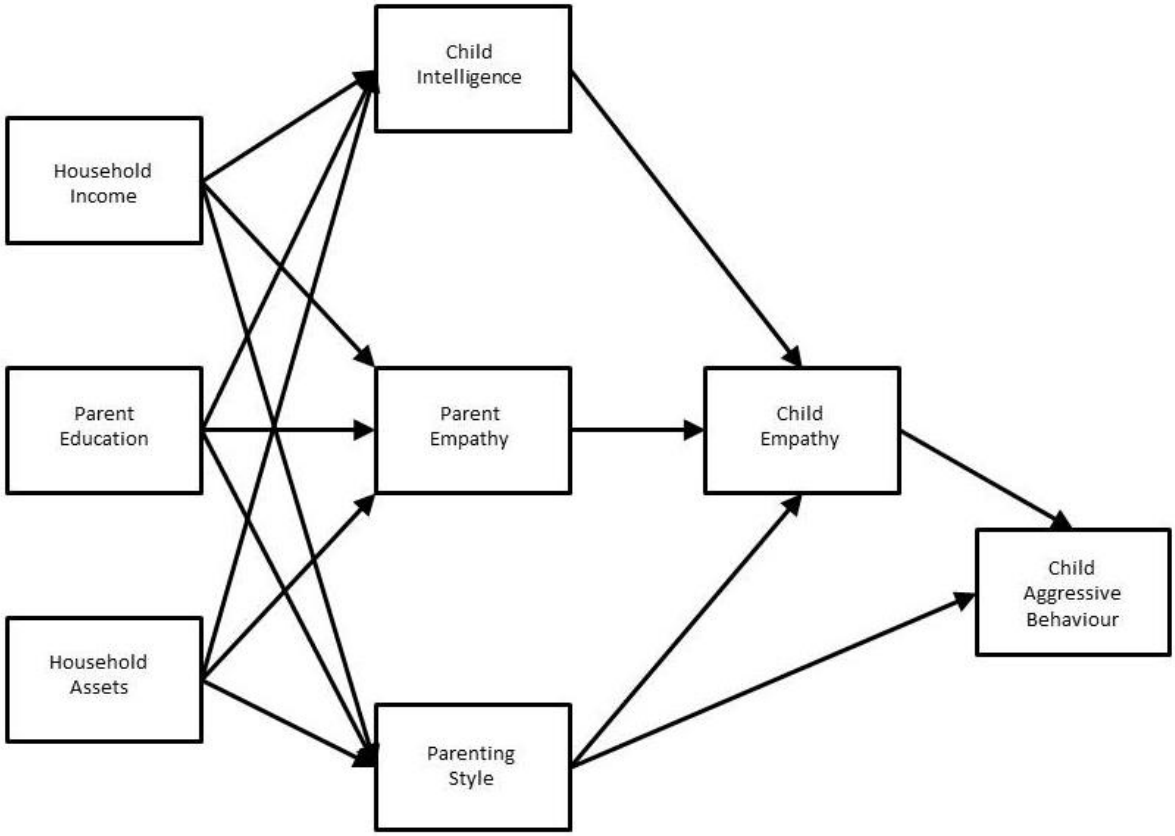

Figure 6. Graphical overview (path diagram) of the conceptual model tested in initial path analysis.

[14] The parent-report of child measures of Child Empathy were utilised as a measure of Child Empathy for reasons which will become clear during analyses.

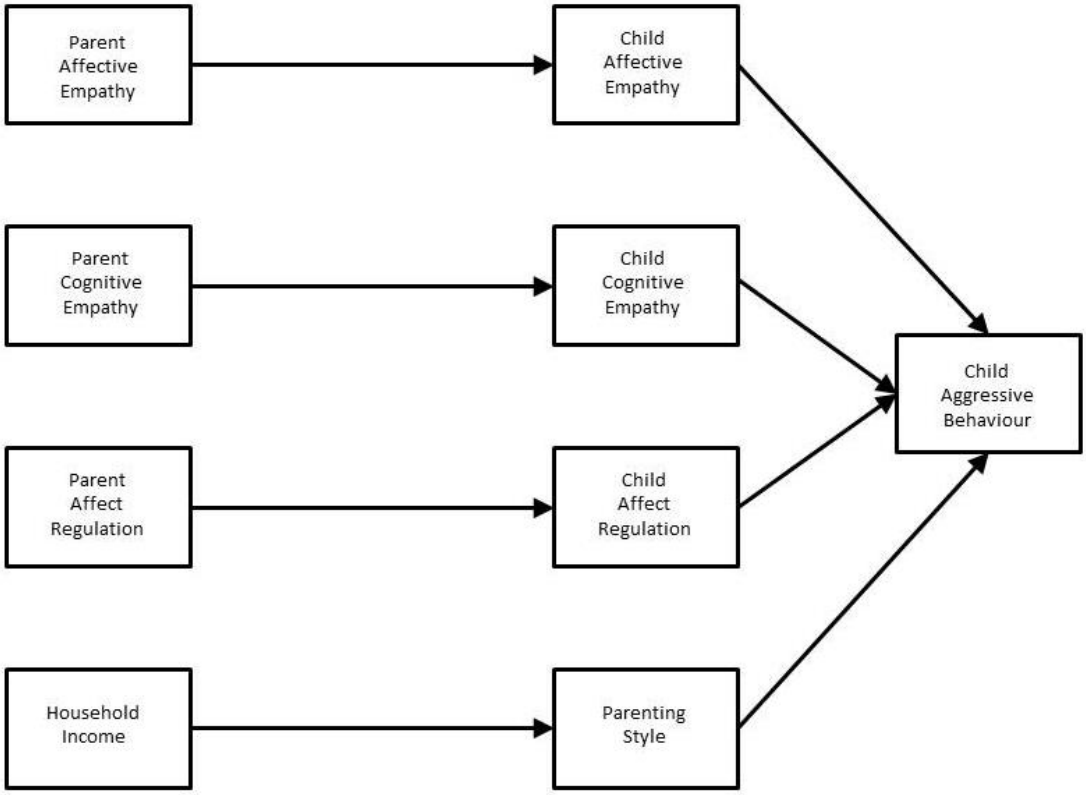

Figure 7. Graphical overview (path diagram) of the conceptual model with empathy deconstructed into its components.

CHAPTER SIX.
RESULTS: STUDY 1

The overarching goal of Study 1 was to investigate the relationship between empathy and aggressive behaviour in typically developing young adolescents (aged 11-13 years) living in the Western Cape of South Africa. Informed by international findings, I hypothesized that (1) Empathy as conceptualised in this dissertation (i.e., comprising Affective, Cognitive, and Affect Regulation components) would be associated with Aggressive Behaviour in this sample. Given previous inconsistent findings across studies investigating affective and cognitive empathy and their relation to aggressive behaviour, I further hypothesized that (2) Cognitive Empathy would more likely be associated with Aggressive Behaviour than Affective Empathy, but both were possible. In specific, in the instance of Cognitive Empathy, I expected reduced Cognitive Empathy to be associated with increased Aggressive Behaviour. In contrast, I expected increased Affective Empathy to be associated with increased Aggressive Behaviour. Finally, given the consistent relationship between affect regulation and aggressive behaviour demonstrated in the literature, I hypothesized that (3) the Affect Regulation component of empathy (measured by affect regulation style in this dissertation) would be associated with Aggressive Behaviour; I expected poorer affect regulation style to be associated with increased Aggressive Behaviour.

To test these hypotheses, the role of Empathy was explored while concurrently investigating the role of several other factors known to be related to empathy and/or aggressive behaviour, namely SES, Age, Gender, Intellectual Functioning, Attention, Working Memory, Parent Empathy, Parenting Style, and Attachment Style. Given their associations with aggressive behaviour in studies conducted outside of South Africa, I hypothesized that these factors (at least some of them) would also be associated with Aggressive Behaviour in this South African sample. However, only two specific hypotheses were posited; among the factors investigated in this dissertation, only the roles of SES and Parenting Style have previously been investigated in a South African context. I therefore hypothesized that (4) lower SES would be associated with increased Aggressive Behaviour and (5) negative Parenting Style would be associated with increased Aggressive Behaviour.

Study 1 consisted of two phases. In Phase 1, informed by previous theory, I proposed a model for Aggressive Behaviour in a group of young adolescents aged 11-13 years (n = 80). This model was tested in hierarchical fashion to build a model which best explains Aggressive Behaviour in this sample. In Phase 2, I attempted to replicate the final model

identified in Phase 1 with a group of demographically equivalent adolescents (n = 80). Since international findings have been inconsistent and the South African literature is limited to one study, replication would provide more confidence in findings.

Results from Study 1 are presented below. For each phase of this study, sample characteristics are presented first, followed by questionnaire reliability analyses (i.e., before conducting further analyses). Thereafter, in Phase 1, I present descriptive and bivariate analyses, followed by model building analyses. In Phase 2, I present descriptive and bivariate analyses. This is followed by replication analysis. Note that descriptive analyses are concerned with the two key variables (i.e., Empathy and Aggressive Behaviour) and bivariate analyses focus on the correlates of empathy, while regression analyses focus on the correlates of aggressive behaviour. A detailed investigation of the correlates of empathy was conducted – this was done to aid in the identification of potential indirect relationships between correlates of Aggressive Behaviour. To conclude, I provide a summary of the similarities and differences in findings across Phase 1 and Phase 2.

Phase 1: Building a Model to Investigate the Predictors[15] of Aggressive Behaviour in Young Adolescents

Sample Characteristics

Table 3 summarizes the demographic and background characteristics of the Phase 1 adolescent sample. Eighty coloured young adolescents (n = 80, age range 11-13 years) and their parents participated in Phase 1 of Study 1. Within this sample, participants were stratified across Age, Gender, and SES (see Figure 13 in Appendix A). All adolescents received their schooling in English, and their home language was English, Afrikaans, or both. Mean scores for Intellectual Functioning, Attention, and Working Memory were lower than Western population norms, which is consistent with the literature indicating that South African children score lower on measures of intellectual functioning developed for their Western counterparts (Foxcroft & Aston, 2006; Gaylard, 2005; Skuy, Schutte, Fridjhon, & Carroll, 2001; van Wyhe, 2012).

Table 3 also presents a breakdown of sample characteristics across gender. A roughly equal number of male and female adolescents participated (n = 39 and n = 41, respectively) so that gender differences could be investigated. This is important as gender is a known

[15] I use the word *predictors* in the context of MRA analyses. This word should not be interpreted to imply causality; it is simply the technical term employed when discussing regression analyses (Field, 2009). The word *predictor* (or any form thereof) should be interpreted to imply correlation in all instances of its use.

correlate of both empathy and aggressive behaviour (Archer, 2004; Card et al., 2008; Christov-Moore et al., 2014; Garaigordobil, 2009). No significant gender differences were identified for any of the sample characteristics.

Table 3

Sample Characteristics (Phase 1)

Characteristic	Group			Significance Across Gender		
	Male (*n*=39)	Female (*n*=41)	Overall (*n*=80)	*t*	*p*	*d*
Age						
Range (years: months)	11:0-13:10	11:0-13:9	11:0-13:10	-	-	-
M (*SD*) (years)	12.33 (0.82)	12.33 (0.76)	12.33 (0.79)	0.02	.982	.01
Home Language						
English: Afrikaans: English and Afrikaans [a]	37: 0: 2	40: 0: 1	77: 0: 3	-	-	-
Intellectual Functioning [b]						
M (*SD*)	91.28 (12.78)	92.00 (14.28)	91.65 (13.49)	-0.24	.814	.05
Attention [c]						
M (*SD*)	8.44 (3.42)	9.10 (3.29)	8.78 (3.35)	-0.88	.381	.20
Working Memory [c]						
M (*SD*)	8.59 (2.62)	9.12 (3.47)	8.86 (3.08)	-0.77	.443	.17
Socioeconomic Status Index [d]						
Range	-3.99-4.27	-6.40-4.65	-6.40-4.65	-	-	-
M (*SD*)	-0.04 (2.53)	0.04 (2.64)	0 (2.57)	-1.33	.187	.03

[a] Chi-squared analyses were not performed on these data as it would not be possible to meaningfully interpret the results due to empty cells. [b] Standardised scores are presented. The Vocabulary and Matrix Reasoning subtests of the *Weschler Abbreviated Scale of Intelligence* (WASI, Weschler, 1999) were used to obtain a short-form index of Intellectual Functioning. A higher score indicates better performance. [c] Standardised scores are presented: The Digit Span subtest of the *Weschler Intelligence Scale for Children* (WISC-IV, Weschler, 2004) was used as an index of Attention (i.e., digits forward) and Working Memory (i.e., digits backward). [d] A standardized composite SES index was calculated from three indices, namely total yearly household income, mother's highest level of education, and material and financial resources.

Questionnaire Reliability

Questionnaires employed were chosen as they have demonstrated good psychometric properties in previous studies (albeit in studies conducted outside of South Africa). Of the measures used, only the APQ and CBCL had previously been employed in the South African context. Consequently, very little is known about the psychometric properties of these questionnaires in the South African context. To elaborate, the CBCL has been used in a range of South African studies of which at least two have demonstrated high reliability (i.e., Malcolm-Smith et al., 2015; Palin et al., 2009), but has not yet been formally validated for this context. In fact, none of the questionnaires employed in this research have yet been formally verified for use in South Africa. Given sample size requirements, formal validity analyses were not possible in this instance either (i.e., this dissertation). Reliability analyses could, however, shed some light on the usefulness of these questionnaires in this sample.

The reliability of questionnaires employed in Phase 1 was assessed using Cronbach's alpha (see Table 4). As can be seen in Table 4, Cronbach's α values ranged from .63 – .90. While values below .70 are not ideal, lower values correspond with questionnaires and subscales comprising fewer items. Since Cronbach's alpha is unduly influenced by the number of items in a questionnaire (Tredoux & Durrheim, 2002), a minimum α of .65 was deemed acceptable in this dissertation[16].

[16] A minimum of .70 is suitable for questionnaires that are newly developed, while basic research should set the minimum to .80, and research employed for practical use (e.g., diagnostic purposes) should set the minimum to .90 (Lance, Butts, & Mitchels, 2006). Since these questionnaires have not been adequately evaluated for this sample and a number of the questionnaires employed are comprised of few items, I used an acceptable minimum of .65.

Table 4

Internal Consistency of Study Questionnaires (Phase 1)

Questionnaire	Number of Items	Cronbach's α
Questionnaire of Cognitive and Affective Empathy (QCAE; parent-report of child)	31	.90
Affective subscale	12	.66
Cognitive subscale	19	.90
Questionnaire of Cognitive and Affective Empathy (QCAE; parent self-report)	31	.87
Affective subscale	12	.69
Cognitive subscale	19	.83
Affect Regulation Checklist (ARC; parent-report of child)	12	.72
Affect Regulation Checklist (ARC; parent self-report)	12	.73
Attachment Style Classification Questionnaire (ASCQ)	15	.63
Alabama Parenting Questionnaire (APQ; short-form)	9	.70
Child Behaviour Checklist (CBCL; externalising subscale)	36	.87

As illustrated in Table 4, the QCAE (both versions) and the CBCL (externalising subscale) had high internal consistency in this sample, yielding Cronbach's α values of .87 – .90. Reliability analyses of the QCAE (both versions) indicated high internal consistency for overall dispositional empathy, and a pattern emerged where alpha values were lower for the Affective subscales than Cognitive subscales. This pattern is unsurprising given that the affective subscale is comprised of fewer items than the cognitive subscale (i.e., 12 vs. 19). Furthermore, as expected, the CBCL (externalising subscale) also had high internal consistency. The remaining measures, bar the ASCQ (α = .63), performed within an acceptable range (.69 – .73). Furthermore, item analyses indicated that the removal of items would not improve or would slightly improve internal consistency of questionnaires, except in the case of the ASCQ where removal of items would notably improve alpha. These findings, together with the fact that these scales have previously been validated (albeit in samples outside of South Africa) supported the conclusion that the questionnaires employed in this phase of Study 1, barring the ASCQ, were reliably measuring what they were developed to measure in this South African sample.

Two points are important to note. Firstly, questionnaires were used in their original form (i.e., no items were removed). This was done to allow for consistency in measures employed across samples in this dissertation and comparison across samples and studies previously employing these measures. Secondly, while the ASCQ was included in analyses,

findings concerning Attachment Style (measured by the ASCQ) were to be interpreted more tentatively than findings concerning correlates measured by the other questionnaires.

Child Empathy and its Correlates

Descriptive statistics of children's performance on the six child empathy measures in the sample (n = 80) as well as across gender are presented in Table 5. As can be seen, although girls scored slightly higher on almost all measures of empathy, these differences were not significant. Some of the standard deviations were higher than ideal (e.g., QCAE and Snap Game).

Correlations between child measures of child empathy and parent-report measures of child empathy. Correlations between child measures of child empathy and parent-report measures of child empathy for each of the empathy components are presented in Table 6. As can be seen, the child measures of the three empathy components were not significantly correlated with the parent-report measures of the respective components. In terms of intercorrelations, the child Affective measure (Empathy for Pain task) and the child Affect Regulation measure (Snap Game) as well as the parent-report Affective and Cognitive measures (i.e., QCAE factors) were significantly positively correlated.

Table 5

Descriptive Statistics of Child Empathy Measures (Phase 1)

Empathy Component	Measure	Domain	Group			Significance Across Gender		
			Male (*n*=39)	Female (*n*=41)	Overall (*n*=80)	*t*	*p*	*d*
Affective								
Child task	Empathy for Pain Task	Affective Sharing	78.72 (10.40)	79.81 (11.21)	79.28 (10.77)	-0.45	.653	.10
Parent-report	QCAE	Dispositional Affective Empathy	5.72 (5.98)	5.54 (7.35)	5.62 (6.68)	0.12	.904	.03
Cognitive								
Child task	UCT ToM Battery	Theory of Mind	85.91 (4.43)	87.43 (5.13)	86.69 (4.83)	-1.41	.162	.32
Parent-report	QCAE	Dispositional Cognitive Empathy	5.86 (10.42)	8.36 (9.16)	7.14 (9.82)	-1.14	.257	.25
Affect Regulation								
Child task	Snap Game	Regulatory Control	-0.62 (12.50)	2.54 (13.47)	1.00 (13.02)	-1.08	.282	.24
Parent-report	ARC	Affect Regulation Style	14.54 (4.15)	15.07 (3.79)	14.81 (3.96)	-0.60	.549	.13

Note. Means presented with standard deviations in parentheses. UCT = University of Cape Town; ToM = Theory of Mind; QCAE = Questionnaire of Cognitive and Affective Empathy; ARC = Affect Regulation Checklist.

Table 6
Correlations Between Child Measures of Child Empathy and Parent-Report Measures of Child Empathy (Phase 1)

Empathy Measure	1.	2.	3.	4.	5.	6.
1. Affective (Child task)	1	-.15	.23*	.05	-.02	.05
2. Cognitive (Child task)		1	-.18	-.12	.02	.10
3. Affect Regulation (Child task)			1	-.07	-.01	-.12
4. Affective (Parent-report)				1	.48**	-.15
5. Cognitive (Parent-report)					1	.08
6. Affect Regulation (Parent-report)						1

* $p < .05$. ** $p < .001$.

Correlations between the Affect Regulation measures of child empathy, child characteristics, and SES. As the Affect Regulation component of empathy is likely to tap into executive functioning (Decety, 2011; Zelazo et al., 2008), I was interested in its relation to participant characteristics, namely Age, Intellectual Functioning, Attention, Working Memory, and SES. Correlations between the child measure of child Affect Regulation (Snap Game) and the parent-report measure of child Affect Regulation (ARC) and participant characteristics are presented in Table 7. As can be seen, the child measure of Affect Regulation (Snap Game) was not significantly correlated with any of the participant characteristics and also not with SES. There were also no significant correlations between the parent-report measure of Affect Regulation (ARC) and participant characteristics and SES. In terms of intercorrelations, as expected, Intellectual Functioning was significantly positively correlated with Attention, Working Memory and SES, and Working Memory and Attention were significantly positively correlated.

Table 7
Correlations Between the Child Measure of Affect Regulation (Snap Game), the Parent-Report Measure of Child Affect Regulation (ARC), Child Characteristics, and SES (Phase 1)

Child Measure	1.	2.	3.	4.	5.	6.	7.
1. Affect Regulation (Child task)	1	-.12	-.03	-.15	-.01	-.01	-.15
2. Affect Regulation (Parent-report)		1	-.07	.12	.12	.04	.06
3. Age			1	-.05	.04	.04	.19
4. Intellectual Functioning				1	.26*	.37**	.45***
5. Attention					1	.34**	-.10
6. Working Memory						1	.12
7. SES							1

* $p < .05$. ** $p < .01$. *** $p < .001$.

Correlations between child and parent empathy measures. Primary caregivers completed a self-report as well as a parent-report of child version of the QCAE. The QCAE served as a measure of both Affective and Cognitive empathy for both parent and child, respectively. Similarly, they completed a self-report as well as a parent-report of child version of the ARC, which served as a measure of Affect Regulation for parent and child, respectively. Correlations between parent-report of child empathy and parent empathy (self-report) measures are presented in Table 8. As can be seen, measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with measures of parent Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively. The strongest relationship was between Cognitive Empathy measures followed by Affective Empathy measures and finally Affect Regulation measures. In terms of intercorrelations, all QCAE factors (both child and parent) were significantly positively correlated.

Table 8
Correlations Between Child and Parent Empathy (Phase 1)

Empathy Measure	1.	2.	3.	4.	5.	6.
1. Child Cognitive	1	.47***	.48***	.37**	.08	-.14
2. Parent Cognitive		1	.25*	.46***	.07	-.13
3. Child Affective			1	.30**	.15	.02
4. Parent Affective				1	-.10	-.19
5. Child Affect Regulation					1	.23*
6. Parent Affect Regulation						1

* $p < .05$. ** $p < .01$. ***$p < .001$.

Correlations between child empathy measures and parenting style. A correlation analysis indicated that the only significant correlation between any of the six child empathy measures and Parenting Style was between the parent-report of child Cognitive measure (QCAE Cognitive subscale) and Parenting Style, $r = .23$, $p = .042$. An independent samples *t*-test indicated that although males' parents scored slightly lower on Parenting Style (i.e., less positive; $M = 27.31$, $SD = 4.34$) than females' ($M = 28.10$, $SD = 5.56$), this difference was not significant, $t\ (78) = -.71$, $p = .482$, $d = .16$.

Correlations between child empathy measures and child attachment style. A correlation analysis indicated that there were no significant correlations between any of the six child empathy measures and child Attachment Style (all $p > .05$). An independent samples *t*-test indicated that although males scored slightly higher on Attachment Style (i.e., more

secure; M = 8.79, SD = 5.58) than females (M = 8.02, SD = 6.16), this difference was not significant, $t(78) = 0.59$, $p = .560$, $d = .13$.

Aggressive Behaviour[17]

Items comprising the externalising subscale of the CBCL (36 items; maximum score = 72) were employed as a measure of Aggressive Behaviour. As was expected from a typically developing sample, children scored on the lower end of the total possible (range: 0-28) and also in the male (range: 1-28) and female subgroups (range: 0-23). The scores within each group were approximately normally distributed within their respective ranges. An independent samples *t*-test indicated that males scored significantly higher on Aggressive Behaviour (M = 10.67, SD = 6.78) than females (M = 7.46, SD = 6.23), $t(78) = 2.20$, $p = .031$, $d = .49$. This is in keeping with the literature.

Interim summary: Eighty typically developing coloured young adolescents (n = 80, age range 11-13 years) and their parents participated in Phase 1 of Study 1. Within this sample, adolescent participants were stratified across Age, Gender, and SES, and a roughly equal number of males and females participated (n = 39 and n = 41, respectively). No significant gender differences were identified for sample characteristics, and contrary to expectations, there were no gender differences for any of the six child empathy measures. As expected, males scored significantly higher on Aggressive Behaviour than females.

In terms of empathy correlates, (1) for each of the empathy components, child measures of child empathy and parent-report measures of child empathy were not significantly correlated; (2) while Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES, child Affect Regulation was not significantly correlated with child characteristics (Age, Attention, Working Memory, Intellectual Functioning) or SES; (3) parent-report measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with parent self-report measures of Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively; (4) there was very little evidence of a relationship between child empathy measures and Parenting Style; and (5) child empathy measures and child Attachment Style were not significantly correlated. Note that these are zero-order correlations and they are subject to change when considered in combination with other variables. While

[17] The relationship between correlates of Aggressive Behaviour will be investigated in model building to follow.

multiple analyses were conducted, these findings assisted in describing the data and are helpful in the model building to follow.

Multiple Regression Analyses: Model Building Analyses to Investigate the Role of Empathy and Other Predictors of Aggressive Behaviour in Young Adolescents

Hierarchical multiple regression analysis was conducted to examine the relationships between Aggressive Behaviour and various potential predictors. The role of empathy in predicting Aggressive Behaviour was of special interest. Informed by previous theory (for the most part based on international research), I proposed a model for predicting Aggressive Behaviour in a group of young adolescents aged 11-13 years (n = 80) (see Figure 5 re-presented below). I then tested this model in hierarchical fashion to build a model which best predicts Aggressive Behaviour in this sample. Variables that added significant change in explanation were retained in the model. Those variables which were investigated as part of an interaction were retained until interactions were assessed, regardless of individual contributions. Model building was also informed to some extent by earlier bivariate analyses (i.e., in this dissertation).

As can be seen, I entered individual context variables first (aside from Child Empathy). In Step 1, Child Characteristics (i.e., Age, Attention, Working Memory and Intellectual Functioning) were entered together as they are known to correlate with behaviour and with one another (see Chapter Four). These intercorrelations were also evident in Phase 1 findings (see Table 6, p. 109). Moreover, since multiple regression analysis does not allow for too much multicollinearity, grouping of variables was necessary, provided this made theoretical sense of course. In Step 2, I entered Gender. Gender was entered separately as, in keeping with international literature, boys in this sample of young adolescents scored significantly higher on Aggressive Behaviour than girls. In Step 3, I entered SES. Given both international and South African findings, I was interested in its separate association with Aggressive Behaviour. This was a very important question to ask in the South African context. Subsequent to this, everyday contexts were entered. In Step 4, I entered Parenting Style. In keeping with international literature, Parenting Style and Aggressive Behaviour were significantly correlated in this sample (see Table 9, p. 115). In Step 5, I entered Attachment Style, given previous international findings indicating that it is correlated with both empathy and Aggressive Behaviour. Attachment Style was entered despite concerns with reliability of the measure employed in this dissertation, but findings were to be interpreted bearing this in mind.

I then addressed empathy. Given the relationship between parent and child empathy in this sample (in keeping with literature), it was expected that both Parent and Child Empathy would predict Aggressive Behaviour. In Step 6 I therefore entered Parent Empathy. Parent Empathy components (i.e., Affective, Cognitive, and Affect Regulation) were entered together as they were expected to correlate with one another. Child Empathy was added subsequent to this as it was expected that Child Empathy would predict Aggressive Behaviour over and above the variance explained by the previously entered variables. In Step 7, I entered child measures of Child Empathy (i.e., Affective, Cognitive, and Affect Regulation) and in Step 8 I entered parent-report measures of Child Empathy (i.e., Affective, Cognitive, and Affect Regulation), as earlier analyses and previous research has indicated that child tasks and parent-report measures of child empathy rarely correlate with each other.

Finally, in keeping with previous research findings and earlier bivariate analyses, it was important to consider the relationships between SES and Intellectual Functioning and SES and Parenting Style. Hence, to assess whether their interactions were further contributing to explaining Aggressive Behaviour, the interaction between SES and Intellectual Functioning was added in Step 9, and the interaction between SES and Parenting Style was added in Step 10.

Table 9 presents the intercorrelations between Aggressive Behaviour and the various potential predictors. As can be seen, several significant zero-order correlations between potential predictors and the outcome variable were present, namely Gender, SES, Parenting Style, Attachment Style, parent Affect Regulation and parent-report of child Affect Regulation (all $p < .05$). Furthermore, as expected, several significant correlations between potential predictors were present.

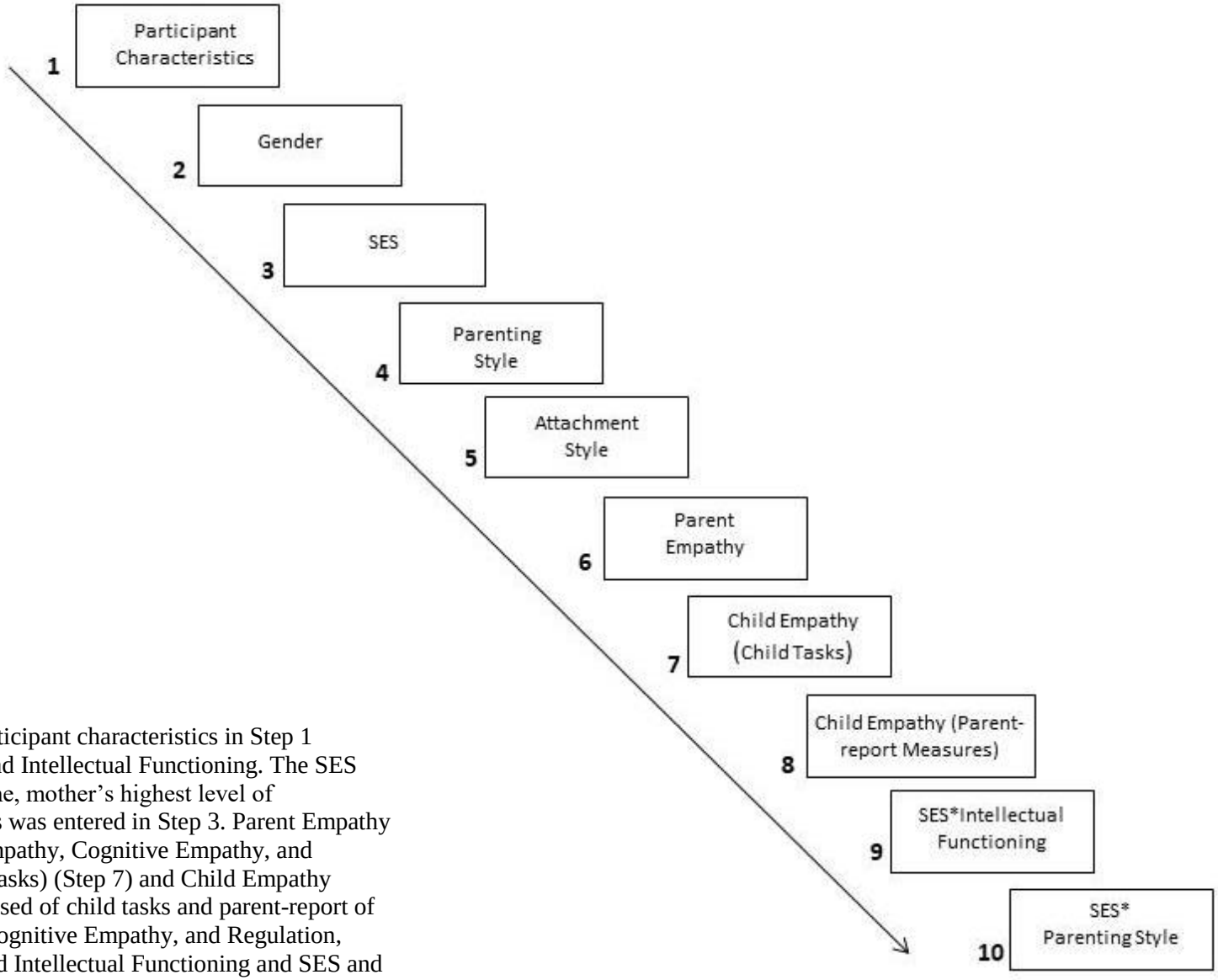

Figure 5. Hierarchical regression Model 1. Participant characteristics in Step 1 included Age, Attention, Working Memory, and Intellectual Functioning. The SES index comprising total yearly household income, mother's highest level of education, and material and financial resources was entered in Step 3. Parent Empathy (Step 6) was comprised of parent Affective Empathy, Cognitive Empathy, and Regulation measures. Child Empathy (Child Tasks) (Step 7) and Child Empathy (Parent-report Measures) (Step 8) were comprised of child tasks and parent-report of child measures of child Affective Empathy, Cognitive Empathy, and Regulation, respectively. The interactions between SES and Intellectual Functioning and SES and Parenting Style were entered in Steps 9 and 10, respectively.

Table 9

Intercorrelations Between Aggressive Behaviour and Potential Predictors (Phase 1)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Aggressive Behaviour [a]	1	.06	-.24*	.04	-.16	-.18	-.28**	-.28**	-.28**	-.06	.14	-.24 *	.12	.18	-.35**	.11	.01	-.12
2. Age		1	-.01	.04	.04	-.05	.19*	-.05	-.01	-.17	-.08	.05	-.10	-.01	-.07	.10	-.08	-.03
3. Gender			1	.10	.09	.03	.01	.08	-.07	-.15	-.12	.12	.13	-.01	.07	.16	.05	.12
4. Attention [b]				1	.34**	.26*	-.10	.23*	-.06	-.21*	-.07	.18	-.08	-.03	.12	.22	-.13	-.01
5. Working Memory					1	.37***	.12	.14	.05	-.14	- .05	.07	-.07	-.12	.05	.22*	.03	-.01
6. Intellectual Functioning [c]						1	.45***	.18	.20*	-.11	-.13**	.26	-.04	-.02	.12	.55***	-.06	-.15
7. SES							1	.17	.26**	-.10	-.35**	.30**	-.11	-.13	.06	.26**	-.06	-.15
8. Parenting Style								1	.40***	.23*	.01	.38***	.23*	.08	.20*	.10	.04	.04
9. Attachment Style									1	.11	.01	.25*	.16	-.07	.21*	.05	.04	-.08
10. Parent Cognitive Empathy										1	.46***	-.13	.47***	.25*	.07	-.17	-.01	-.03
11. Parent Affective Empathy											1	-.19*	.37***	.30**	-.10	-.16	.18	.01
12. Parent Affect Regulation												1	-.14	.02	.23*	.07	.11	.09
13. Child Cognitive Empathy (Parent-report)													1	.48***	.08	.02	-.02	-.01
14. Child Affective Empathy (Parent-report)														1	-.15	-.12	.05	-.07
15. Child Affect Regulation (Parent-report)															1	.10	.05	-.12
16. Child Cognitive Empathy (Child task)																1	-.15	.23*
17. Child Affective Empathy (Child task)																	1	-.18
18. Child Affect Regulation (Child task)																		1

Note. Parent Cognitive and Affective Empathy refer to Dispositional Cognitive Empathy and Dispositional Affective Empathy. Parent Affect Regulation refers to Affect Regulation Style. These measures were taken from the parent self-report version of the QCAE and ARC respectively. Similarly, this holds for Child Cognitive and Affective Empathy, and Affect Regulation (parent-report of child). The child task measures are Theory of Mind, Empathy for Pain, and Snap Game, respectively.

[a] Scores taken from the externalising subscale of the Child Behaviour Checklist. [b] Scores taken from Digit Span subtest of the WISC-IV: Digits forwards for Attention and digits backward for Working Memory [c] Scores taken from the Vocabulary and Matrix Reasoning subtests of the WASI (Weschler, 1999) were used to obtain a short-form index of intellectual functioning. A higher score indicates better performance. Standardised scores are presented.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Steps 1 – 5. A summary of Steps 1 – 5 of the regression analyses are presented in Table 10. To start with, in Step 1 I investigated whether Child Characteristics (i.e., Age, Attention, Working Memory, and Intellectual Functioning) predicted Aggressive Behaviour. These four variables were entered as a block. This model was not significant, $F(4, 75) = 1.23$, $p = .306$, $R = .25$, $R^2 = .06$, *Adjusted* $R^2 = .01$. Together Child Characteristics did not yield a significant change in explained variance. These variables as a group (i.e., Child Characteristics) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$). Findings suggested that these variables therefore be excluded from the final model. Re-running the regression analysis with only the Intellectual Functioning variable in Step 1 indicated that this variable did indeed not add significant explanation on its own (see Table 10). Intellectual Functioning was, however, retained as I was interested in the interaction between SES and Intellectual Functioning (to be added in Step 9).

Gender was added in Step 2. This model was significant, $F(2, 77) = 3.81$, $p = .026$, $R = .30$, $R^2 = .09$, *Adjusted* $R^2 = .07$. Gender (*Sig.* $\Delta F = .032$, Δ *Adjusted* $R^2 = .05$) yielded a significant change in explained variance (i.e., 5%). Gender was therefore retained in the model.

SES was added in Step 3. This model was significant, $F(3, 76) = 4.05$, $p = .010$, $R = .37$, $R^2 = .14$, *Adjusted* $R^2 = .10$. SES (*Sig.* $\Delta F = .044$, Δ *Adjusted* $R^2 = .03$) yielded a significant change in explained variance (i.e., 3%), and was therefore retained in the model.

Parenting Style was added in Step 4. This model was significant, $F(4, 75) = 4.17$, $p = .004$, $R = .43$, $R^2 = .18$, *Adjusted* $R^2 = .14$. Parenting Style (*Sig.* $\Delta F = .048$, Δ *Adjusted* $R^2 = .04$) yielded a significant change in explained variance (i.e., 4%), and was therefore retained in the model.

Attachment Style was added in Step 5. This model was significant, $F(5, 74) = 3.92$, $p = .003$, $R = .46$, $R^2 = .21$, *Adjusted* $R^2 = .16$. However, Attachment Style (*Sig.* $\Delta F = .115$, Δ *Adjusted* $R^2 = .01$) did not yield a significant change in explained variance, and was therefore not retained in the model.

Table 10
Summary of Steps 1-5 Regression Analyses

	B	SE *B*	*β*	*T*	*Tolerance*	*R*	R^2	ΔR^2	*Adjusted* R^2
Step 1						.18	.03	.03	.02
Intellectual Functioning[a]	-.09	.06	-.18	-1.66	1.00				
Step 2						.30	.09	.06*	.07
Intellectual Functioning	-.09	.05	-.18	-1.64	.99				
Gender	-3.14	1.44	-.24	-2.18*	.99				
Step 3						.37	.14	.05*	.10
Intellectual Functioning	-.03	.06	-.07	-.58	.79				
Gender	-3.13	1.41	-.24	-2.22*	.99				
SES	-.63	.31	-.24	-2.05*	.80				
Step 4						.43	.18	.04*	.14
Intellectual Functioning	-.02	.06	-.04	-.35	.79				
Gender	-2.92	1.39	-.22	-2.11*	.99				
SES	-.57	.30	-.22	-1.87	.79				
Parenting Style	-.29	.14	-.22	-2.01*	.95				
Step 5						.46	.21	.03	.16
Intellectual Functioning	-.02	.06	-.03	-.27	.79				
Gender	-3.17	1.38	-.24	-2.24*	.98				
SES	-.48	.31	-.19	-1.58	.77				
Parenting Style	-.20	.15	-.15	-1.28	.82				
Attachment Style	-.21	.13	-.19	-1.60	.79				

[a] I only present the model statistics for the variable retained in this step (i.e., Intellectual Functioning).
* $p < .05$.

Steps 6 – 8. A summary of Steps 1 – 8 of the regression analyses are presented in Table 11. Note that non-significant steps have been removed aside from Steps 1 and 8. Parent Empathy variables (i.e., Affective, Cognitive, and Affect Regulation) were added in Step 6 as a block. This model was significant, $F(7, 72) = 2.54$, $p = .022$, $R = .45$, $R^2 = .20$, *Adjusted* $R^2 = .12$. However, Parent Empathy (*Sig.* $\Delta F = .701$) did not yield a significant change in explained variance. These variables as a group (i.e., Parent Empathy) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$). Parent Empathy variables were therefore excluded from the model.

Child measures of Child Empathy variables (i.e., Affective, Cognitive, and Affect Regulation) were added in Step 7 as a block. This model was significant, $F(7, 72) = 2.31$, $p = .035$, $R = .43$, $R^2 = .18$, *Adjusted* $R^2 = .10$. However, these child measures of Child Empathy (*Sig.* $\Delta F = .988$) did not yield a significant change in explained variance. These variables as a group (i.e., child measures of Child Empathy) as well as individually did not appear to

contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$), ensuring their exclusion from the model.

Parent-report measures of Child Empathy variables (i.e., Affective, Cognitive, and Affect Regulation) were added in Step 8 as a block. This model was significant, $F(7, 72) = 4.28$, $p = .001$, $R = .54$, $R^2 = .29$, *Adjusted* $R^2 = .23$. Parent-report measures of Child Empathy (*Sig.* $\Delta F = .988$, Δ *Adjusted* $R^2 = .09$) yielded a significant change in explained variance (i.e., 9%). However, while these variables as a group (i.e., parent-report measures of Child Empathy) significantly explained variance in Aggressive Behaviour, it appears as though the Affect Regulation variable was responsible for the significant contribution ($p = .020$). Important to note is that the parent-report measures of Child Affective Empathy and Child Cognitive Empathy yielded similar β values relative to the other contributing variables, suggesting that these other empathy variables may well be important to consider. These contributions were not, however, significant (see Table 11). Only child Affect Regulation was therefore retained in the model. Re-running the regression analysis with only this Affect Regulation variable in Step 8 indicated that this variable did indeed add significant explanation on its own (i.e., 7%; $p < .01$).

Steps 9 – 10. The interaction between Intellectual Functioning and SES was added in Step 9. While this model was significant, $F(6, 73) = 4.35$, $p = .001$, $R = .51$, $R^2 = .26$, *Adjusted* $R^2 = .20$, the interaction between Intellectual Functioning and SES (*Sig.* $\Delta F = .672$) did not yield a change in explained variance. This interaction was therefore not retained in the model and there was consequently no reason to retain Intellectual Functioning in the model (see Step 1).

Finally, the interaction between Parenting Style and SES was added in Step 10. This model was significant, $F(5,74) = 6.71$, $p < .001$, $R = .56$, $R^2 = .31$, *Adjusted* $R^2 = .27$. The interaction between Parenting Style and SES (*Sig.* $\Delta F = .023$, Δ *Adjusted* $R^2 = .05$) yielded a significant change in explained variance (i.e., 5%), and was therefore retained in the model.

Table 11

Summary of Steps 1 – 8 Regression Analyses

	B	SE *B*	*β*	*t*	*Tolerance*	*R*	R^2	ΔR^2	*Adjusted* R^2
Step 1						.18	.03	.03	.02
Intellectual Functioning	-.09	.06	-.18	-1.66	1.00				
Step 2						.30	.09	.06*	.07
Intellectual Functioning	-.09	.05	-.18	-1.64	.99				
Gender	-3.14	1.44	-.24	-2.18*	.99				
Step 3						.37	.14	.05*	.10
Intellectual Functioning	-.03	.06	-.07	-.58	.79				
Gender	-3.13	1.41	-.24	-2.22*	.99				
SES	-.63	.31	-.24	-2.05*	.80				
Step 4						.43	.18	.04*	.14
Intellectual Functioning	-.02	.06	-.04	-.35	.79				
Gender	-2.92	1.39	-.22	-2.11*	.99				
SES	-.57	.30	-.22	-1.87	.79				
Parenting Style	-.29	.14	-.22	-2.01*	.95				
Step 8						.54	.29	.11*	.23
Intellectual Functioning	-.01	.06	-.03	-.23	.78				
Gender	-2.46	1.33	-.19	-1.85	.97				
SES	-.56	.29	-.22	-1.90	.77				
Parenting Style	-.20	.14	-.15	-1.44	.87				
Child Affective Empathy [a]	.20	.12	.20	1.71	.72				
Child Cognitive Empathy [a]	-.11	.08	-.16	-1.35	.69				
Child Affect Regulation [a]	-.42	.18	-.25	-2.38*	.90				

* $p < .05$.

[a] Parent-report measures of Child Empathy.

A summary of Steps 1 – 10 regression analyses are presented in Table 12. All non-significant steps have been removed. This model was accepted as the 'final model' (see Figure 8) as each step yielded a significant change in explained variance. This model was significant, $F(5,74) = 6.71$, $p < .001$, $R = .56$, $R^2 = .31$, *Adjusted* $R^2 = .27$, explaining 27% of the variance in Aggressive Behaviour. Gender added 5% explanation (*Sig.* $\Delta F = .031$, Δ *Adjusted* $R^2 = .05$), SES added 6% explanation (*Sig.* $\Delta F = .011$, Δ *Adjusted* $R^2 = .06$), Parenting Style added 4% explanation (*Sig.* $\Delta F = .041$, Δ *Adjusted* $R^2 = .04$), Child Affect Regulation (parent-report measure) added 7% explanation (*Sig.* $\Delta F = .005$, Δ *Adjusted* $R^2 = .07$), and the interaction between Parenting Style and SES added a further 5% explanation (*Sig.* $\Delta F = .029$, Δ *Adjusted* $R^2 = .05$). Despite significant change in explanation added by Parenting Style, β values suggested that Parenting Style did not significantly contribute to the outcome on its own. The empathy-related variable (i.e., Child Affect Regulation) provided the most explanation (7%).

Table 12
Summary of Steps 1 – 10 Regression Analyses

	B	SE *B*	*β*	*t*	*Tolerance*	*R*	R^2	ΔR^2	*Adjusted* R^2
Step 2						.24	.06	.06*	.05
Gender	-3.30	1.46	-.24	-2.20*	1.00				
Step 3						.37	.13	.08*	.11
Gender	-3.15	1.40	-.24	-2.24*	1.00				
SES	.71	.28	-.28	-2.59*	1.00				
Step 4						.43	.18	.05*	.15
Gender	-2.93	1.38	-.22	-2.12*	.99				
SES	-.61	.24	-.24	-2.25*	.97				
Parenting Style	-.29	.14	-.22	-2.08*	.96				
Step 8						.51	.26	.08**	.22
Gender	-2.72	1.32	-.21	-2.06*	.99				
SES	-.60	.26	-.23	-2.29*	.97				
Parenting Style	-.22	.14	-.17	-1.61	.93				
Child Regulation [a]	-.49	.17	-.29	-2.87**	.96				
Step 10						.56	.31	.05*	.27
Gender	-2.95	1.29	-.22	-2.29*	.99				
SES	-.60	.25	-.23	-2.34*	.97				
Parenting Style	-.12	.14	-.09	-.85	.84				
Child Regulation [a]	-.47	.17	-.28	-2.82**	.96				
Parenting Style*SES [b]	.06	.03	.24	2.33*	.89				

* $p < .05$. ** $p < .01$.
[a] Parent-report measure of Child Regulation. [b] Interaction between Parenting Style and SES.

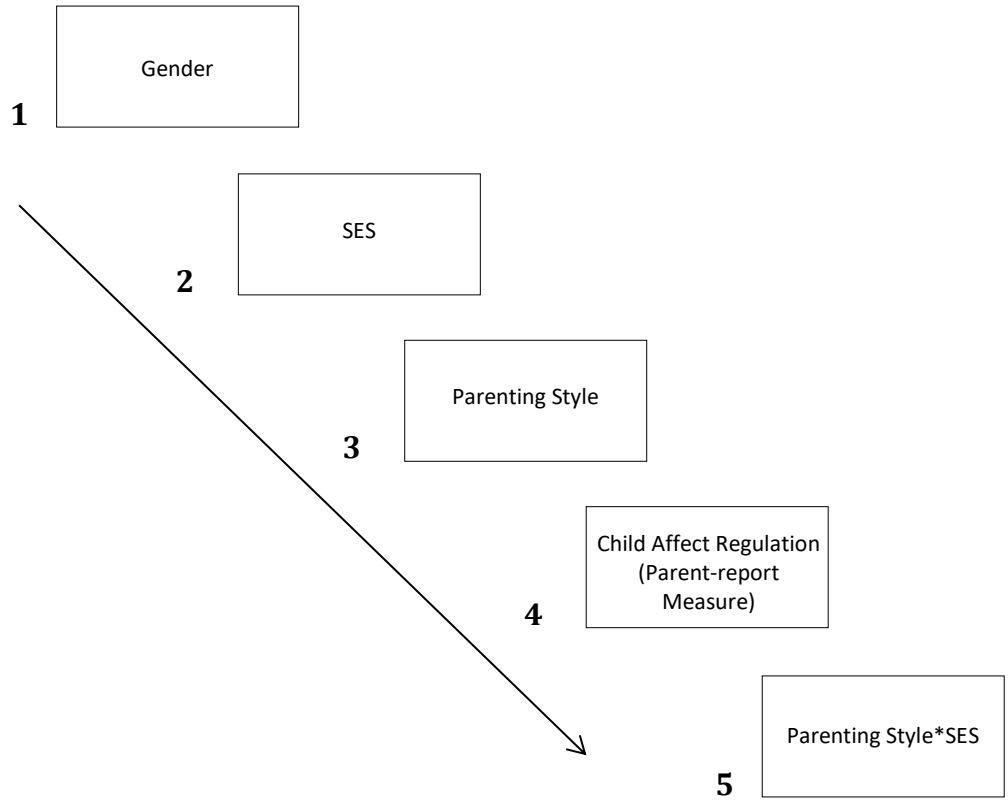

Figure 8. Final hierarchical model. All steps added significant change in explanation. Parenting Style*SES refers to the interaction between Parenting Style and SES.

In sum, findings indicated that Gender, Parenting Style, SES, Child Affect Regulation (parent-report measure) and the interaction between SES and Parenting Style significantly predicted Aggressive Behaviour in young adolescents living in the Western Cape of South Africa. They furthermore suggested that Parenting Style did not significantly add explanation on its own. In terms of the role of empathy, of the empathy variables considered, only Child Affect Regulation (parent-report measure) played a role in predicting Aggressive Behaviour in this sample of young adolescents.

At this point it is very important that we remain aware that the relationships between the variables included in the analyses above are very complex. For example, as variables were added, the contribution of other variables to explaining the outcome changed somewhat. In some instances variance explained changed in both significance and strength (in terms of β values). This highlights the importance of investigating correlates of behaviour in context.

Phase 2: Replication of the Final Model Identified in Phase 1

Sample Characteristics

Table 13 summarizes the demographic and background characteristics of the Phase 2 adolescent sample, and also presents a breakdown of characteristics across gender. Eighty coloured young adolescents (n = 80, age range 11-13 years) and their parents participated in Phase 2 of Study 1. As in Phase 1 of Study 1, within this sample, participants were stratified across Age, Gender, and SES (see Figure 14 in Appendix A). All adolescents received their schooling in English, and their home language was English, Afrikaans, or both. Again, in keeping with literature, mean scores for Intellectual Functioning, Attention, and Working Memory were lower than Western population norms. In addition to this, an equal number of male and female adolescents participated (n = 40 and n = 40, respectively) so that gender differences could be investigated. No significant gender differences were identified for any of the sample characteristics.

Overall then, the Phase 2 adolescent sample was demographically equivalent to the Phase 1 adolescent sample: Both samples were stratified according to Age, Gender, and SES, and included only coloured adolescents receiving their schooling in English and whose home language was either English or Afrikaans or both. These samples furthermore performed similarly on measures of Intellectual Functioning, Attention, and Working Memory (see Table 14 for a comparison of Phase 1 and 2 sample characteristics). Finally, no gender differences were identified for any of the sample characteristics in either Phase 1 or Phase 2.

Table 13

Sample Characteristics (Phase 2)

Characteristic	Group			Significance Across Gender		
	Male (*n*=40)	Female (*n*=40)	Overall (*n*=80)	t/χ^2	*p*	*d*/*V*
Age						
Range (years: months)	11:0-13:10	11:0-13:6	11:0-13:10	-	-	-
M (*SD*) (years)	12.30 (0.83)	12.37 (0.75)	12.33 (0.79)	-0.44	.664	.09
Home Language						
English: Afrikaans: English and Afrikaans	32: 5: 3	35: 3: 2	67: 8: 5	0.91 [a]	.667	.10
Intellectual Functioning [b]						
M (*SD*)	88.35 (10.94)	88.87 (13.95)	88.61 (12.46)	-0.19	.852	.04
Attention [c]						
M (*SD*)	8.63 (2.94)	9.05 (3.26)	8.84 (3.12)	-0.61	.545	.14
Working Memory [c]						
M (*SD*)	7.95 (2.61)	7.63 (2.22)	7.79 (2.42)	0.60	.551	.13
Socioeconomic Status Index [d]						
Range	-4.39-4.80	-6.39-3.96	-6.39-4.80	-	-	-
M (*SD*)	0.06 (2.49)	-0.57 (2.73)	0 (2.60)	0.19	.847	.24

[a] Fisher's Exact Test (FET; Field, 2009). [b] Standardised scores are presented: The Vocabulary and Matrix Reasoning subtests of the *WASI* (Weschler, 1999) were used to obtain a short-form index of Intellectual Functioning. A higher score indicates better performance. [c] Standardised scores are presented: The Digit Span subtest of the *WISC-IV* (Weschler, 2004) was used as an index of Attention (i.e., digits forward) and Working Memory (i.e., digits backward). [d] A standardized composite SES index was calculated from three indices, namely total yearly household income, mother's highest level of education, and material and financial resources.

Table 14

A Comparison of Phase 1 and Phase 2 Sample Characteristics

Characteristic	Group		Significance Across Phases		
	Phase 1 (*n*=80)	Phase 2 (*n*=80)	t/χ^2	*p*	*d*/*phi*
Age					
Range (years: months)	11:0-13:10	11:0-13:10	-	-	-
M (*SD*) (years)	12.33 (0.79)	12.33 (0.79)	.01	.993	<.001
Gender					
Male: Female	39: 41	40: 40	.03	.874	.01
Home language					
English: Afrikaans: English and Afrikaans [a]	77: 0: 3	67: 8: 5	-	-	-
Intellectual functioning [b]					
M (*SD*)	91.65 (13.49)	88.61 (12.46)	1.48	.141	.23
Attention [b]					
M (*SD*)	8.78 (3.35)	8.84 (3.12)	-.12	.903	.02
Working memory [b]					
M (*SD*)	8.86 (3.08)	7.79 (2.42)	2.46 [c]	.015*	.38
Socioeconomic status index [d]					
Range	-6.40-4.65	-6.39-4.80	-	-	-
M (*SD*)	0 (2.57)	0 (2.60)	0	.930	0

Note. Means presented with standard deviations in parentheses.

[a] Chi-squared analysis was not performed on these data as it would not be possible to meaningfully interpret the results due to empty cells. [b] Standardised scores are presented: A higher score indicates better performance. [c] Values for equal variances not assumed presented (Levene's test: $p = .032$). [d] A standardized composite SES index was calculated from three indices, namely total yearly household income, mother's highest level of education, and material and financial resources.

* $p < .05$.

Questionnaire Reliability

The reliability of questionnaires employed in Phase 2 was assessed using Cronbach's alpha (see Table 15). As can be seen, Cronbach's α values ranged from .55 – .87. As in Phase 1, lower values corresponded with questionnaires and subscales comprising fewer items. Furthermore, a similar pattern of alpha values emerges as seen in Phase 1.

As shown in Table 15, the QCAE (both versions) and the CBCL (externalising subscale) had high internal consistency in this sample, yielding Cronbach's α values of .80 – 84. As in Phase 1 analyses, reliability analyses of the QCAE (both versions) indicated high internal consistency for overall dispositional empathy, and a pattern emerged where alpha values were lower for the Affective subscales than Cognitive subscales, and as expected, the CBCL (externalising subscale) also had high internal consistency. Again, the remaining measures, bar the ASCQ (α = .55), performed within an acceptable range (.66 – .75). Lastly, as in Phase 1 analyses, item analyses indicated that the removal of items would not improve or would only slightly improve internal consistency of questionnaires, except in the case of the ASCQ where removal of items would notably improve alpha. The consistency in internal consistency analyses across the two phases of Study 1 in conjunction with the fact that these measures have previously been validated (albeit in samples outside of South Africa) supported the conclusion that the questionnaires employed in this phase of Study 1, barring the ASCQ, were reliably measuring what they were developed to measure in this South African sample.

Table 15
Internal Consistency of Study Questionnaires (Phase 2)

Questionnaire	Number of Items	Cronbach's α
Questionnaire of Cognitive and Affective Empathy (parent-report of child)	31	.84
Affective subscale	12	.73
Cognitive subscale	19	.87
Questionnaire of Cognitive and Affective Empathy (parent self-report)	31	.80
Affective subscale	12	.61
Cognitive subscale	19	.83
Affect Regulation Checklist (parent-report of child)	12	.70
Affect Regulation Checklist (parent self-report)	12	.75
Attachment Style Classification Questionnaire	15	.55
Alabama Parenting Questionnaire (short-form)	9	.66
Child Behaviour Checklist (externalising subscale)	36	.84

Child Empathy and its Correlates

Descriptive statistics of children's performance on the six child empathy measures in the sample (n = 80) as well as across gender are presented in Table 16. In keeping with findings from Phase 1, girls scored slightly higher on almost all measures of empathy, and scored significantly higher on parent-report of child Affective empathy (M = 7.55, SD = 7.20) than boys (M = 2.05, SD = 9.43), $t(78) = -2.93$, $p = .004$, $d = .66$. As in Phase 1, some of the standard deviations were higher than ideal (e.g., QCAE and Snap Game).

Correlations between child measures of child empathy and parent-report measures of child empathy. Correlations between child measures of child empathy and parent-report measures of child empathy components are presented in Table 17. In keeping with findings from Phase 1, the child measures of the three empathy components were not significantly correlated with the parent-report of child measures of the respective components. In contrast to findings from Phase 1, there were no significant intercorrelations.

Table 16

Descriptive Statistics of Child Empathy Measures (Phase 2)

Empathy Component	Measure	Domain	Group			Significance Across Gender		
			Male (*n*=40)	Female (*n*=40)	Overall (*n*=80)	*t*	*p*	*d*
Affective								
Child task	Empathy for Pain Task	Affective Sharing	82.13 (10.98)	82.43 (9.69)	82.28 (10.29)	-0.13	.900	.03
Parent-report	QCAE	Dispositional Affective Empathy	2.05 (9.43)	7.55 (7.20)	4.80 (8.79)	-2.93	.004*	.66
Cognitive								
Child task	UCT ToM Battery	Theory of Mind	82.25 (7.83)	84.10 (7.94)	83.18 (7.89)	-1.05	.296	.23
Parent-report	QCAE	Dispositional Cognitive Empathy	4.07 (8.25)	5.43 (8.63)	4.75 (8.42)	-0.72	.474	.16
Regulation								
Child task	Snap Game	Regulatory Control	-4.70 (13.88)	-4.80 (11.89)	-4.78 (12.84)	0.04	.972	.01
Parent-report	ARC	Affect Regulation	14.78 (3.57)	15.85 (4.34)	15.31 (3.98)	-1.21	.230	.27

Note. Means presented with standard deviations in parentheses. UCT = University of Cape Town; ToM = Theory of Mind; QCAE = Questionnaire of Cognitive and Affective Empathy; ARC = Affect Regulation Checklist.

* $p < .01$.

Table 17
Correlations Between Child Measures of Child Empathy and Parent-Report Measures of Child Empathy (Phase 2)

Empathy Measure	1.	2.	3.	4.	5.	6.
1. Affective (Child task)	1	-.03	.11	-.1	.08	.17
2. Cognitive (Child task)		1	-.19	-.07	-.15	.09
3. Affect Regulation (Child task)			1	-.01	.14	-.01
4. Affective (Parent-report)				1	.06	-.07
5. Cognitive (Parent-report)					1	.06
6. Affect Regulation (Parent-report)						1

Note. $p > .05$ for all values.

Correlations between the Affect Regulation measures of child empathy, child characteristics, and SES. Correlations between the child measure of child Affect Regulation (Snap Game) and the parent-report measure of child Affect Regulation (ARC) and participant characteristics are presented in Table 18. As can be seen, the child measure of Affect Regulation (Snap Game) was significantly correlated with SES ($r = -.23$, $p = .038$), suggesting that as SES increased children were more likely to present with poorer Affect Regulation. This relationship was not found in Phase 1. Furthermore, there were no significant correlations between the parent-report measure of Affect Regulation (ARC) and participant characteristics and SES (as in Phase 1). In terms of intercorrelations, in keeping with Phase 1 findings, Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES (all $p < .05$). Unexpectedly, Age and Working Memory were negatively correlated, suggesting that as Age increased Working Memory decreased. This latter relationship was not found in Phase 1.

Table 18
Correlations Between the Child Measure of Affect Regulation (Snap Game), the Parent-Report Measure of Child Affect Regulation (ARC), Child Characteristics, and SES (Phase 2)

Child Measure	1.	2.	3.	4.	5.	6.	7.
1. Affect Regulation (Child task)	1	-.01	-.16	-.03	.15	.14	-.23*
2. Affect Regulation (Parent-report)		1	-.04	.16	.11	.05	.13
3. Age			1	-.14	.10	-.27*	.01
4. Intellectual Functioning				1	.38**	.25*	.39***
5. Attention					1	.10	.12
6. Working Memory						1	.10
7. SES							1

* $p < .05$. ** $p < .01$. *** $p < .001$.

Correlations between child and parent empathy measures. Correlations between parent-report of child empathy and parent empathy (self-report) measures are presented in Table 19. In keeping with findings from Phase 1, parent-report measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with measures of parent Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively. The strongest relationship was between Affective empathy measures followed by Affect Regulation measures and finally Cognitive empathy measures. In terms of intercorrelations, parent Affective and Cognitive empathy (QCAE factors) were significantly positively correlated as in Phase 1. Furthermore, Parent Affective Empathy and Parent Affect Regulation were significantly negatively correlated. This latter correlation was not found in Phase 1.

Table 19
Correlations Between Child and Parent Empathy Measures (Phase 2)

Empathy Measure	1.	2.	3.	4.	5.	6.
1. Child Cognitive	1	.33**	.06	.07	.19	-.04
2. Parent Cognitive		1	.18	.34**	-.01	-.05
3. Child Affective			1	.62***	-.07	-.12
4. Parent Affective				1	-.13	-.27*
5. Child Affect Regulation					1	.48***
6. Parent Affect Regulation						1

* $p < .05$. ** $p < .01$. ***p < .001.

Correlations between child empathy measures and parenting style. Correlation analyses indicated that the only significant correlation between any of the six child empathy measures and Parenting Style was between the child measure of Affect Regulation (Snap Game) and Parenting Style, $r = -.23$, $p = .045$. This correlation was not found in Phase 1 and its direction was unexpected. An independent samples *t*-test indicated that although males' parents scored slightly lower on Parenting Style (i.e., less positive; $M = 27.90$, $SD = 4.86$) than females' ($M = 28.60$, $SD = 4.38$), in keeping with findings from Phase 1, this difference was not significant, $t(78) = -0.68$, $p = .50$, $d = .15$.

Correlations between child empathy measures and child attachment style. As in Phase 1, a correlation analysis indicated that there were no significant correlations between any of the six child empathy measures and child Attachment Style (all $p > .05$). Contrary to Phase 1, an independent samples *t*-test indicated that males scored significantly higher on

Attachment Style (i.e., more secure; $M = 9.33$, $SD = 4.91$) than females ($M = 6.08$, $SD = 6.01$), $t(78) = 2.65$, $p = .010$, $d = .73$.

Aggressive Behaviour

As was expected from a typically developing sample, and in keeping with findings from Phase 1, overall children scored on the lower end of the total possible range (range: 0-29; maximum score of 72) and also in the male (range: 1-26) and female subgroups (range: 0-29). The scores within each group were approximately normally distributed within their respective ranges. An independent samples *t*-test indicated that although males scored higher on Aggressive Behaviour ($M = 9.65$, $SD = 5.74$) than females ($M = 8.75$, $SD = 6.36$), this difference was not significant, $t(78) = 0.67$, $p = .508$, $d = .15$. The absence of a significant difference was unexpected and contradicted findings from Phase 1, where males scored significantly higher on Aggressive Behaviour than females.

Interim summary: Eighty typically developing coloured young adolescents ($n = 80$, age range 11-13 years) and their parents participated in Phase 2 of Study 1. Within this sample, adolescent participants were stratified across Age, Gender, and SES, and an equal number of males and females participated. No significant gender differences were identified for sample characteristics. Furthermore, girls scored significantly higher on only one of the six child empathy measures (parent-report of child Affective empathy), and contrary to expectations, while boys scored slightly higher on Aggressive Behaviour, this difference was not significant.

In terms of empathy correlates, (1) parent-report measures and child measures of each of the empathy components were not significantly correlated; (2) the child measure of Affect Regulation (Snap Game) was significantly negatively correlated with SES but not significantly correlated with child characteristics, while Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES; (3) parent-report measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with parent self-report measures of Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively; (4) there was very little evidence of a relationship between child empathy measures and Parenting Style; and (5) child empathy measures and child Attachment Style were not significantly correlated. For the most part, these findings were in keeping with Phase 1 findings (a detailed summary of the similarities and differences across phases to follow after Replication Analyses).

Multiple Regression Analyses: Replication of the Final Model Identified in Phase 1 to Investigate the Role of Empathy and Other Predictors of Aggressive Behaviour in Young Adolescents

Replication Analysis. To recap, Figure 8 (re-presented below) illustrates the model accepted as the 'final model' in Phase 1, which explained 27% of the variance in Aggressive Behaviour (R^2 = .31, *Adjusted* R^2 = .27). As can be seen in Figure 8, Gender, SES, Parenting Style, parent-report of child Affect Regulation, and the interaction between Parenting Style and SES were entered in 5 steps in this model. Simultaneous multiple regression analysis was conducted to investigate whether this model would hold in a second sample of young adolescents demographically equivalent to the Phase 1 sample (i.e., whether it would replicate).

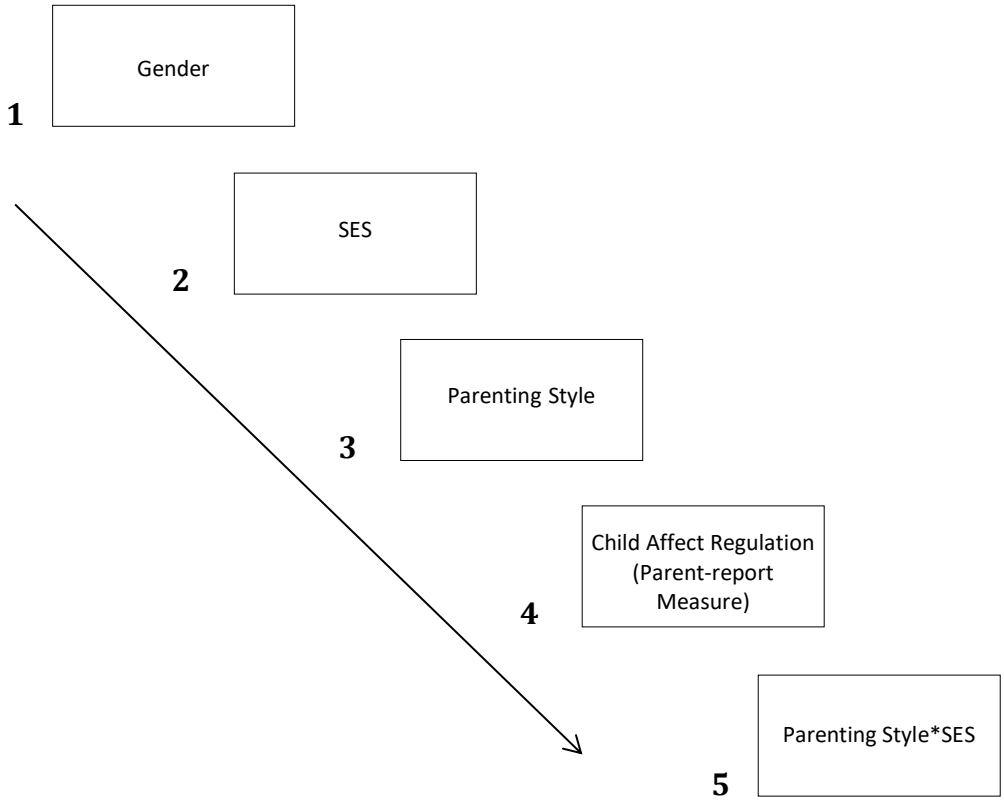

Figure 8. Final hierarchical model. Parenting Style*SES refers to the interaction between Parenting Style and SES.

Table 20 presents the intercorrelations between Aggressive Behaviour and the various potential predictors. As can be seen, only two of these zero-order correlations were significant, namely Parenting Style (r = -.43, p < .001) and parent-report of Child Affect Regulation (r = -.32, p = .002), suggesting that only these two variables out of the four included may be significant predictors of Aggressive Behaviour in this sample. Parenting Style was furthermore significantly correlated with SES and Child Regulation.

Table 20
Intercorrelations Between Potential Predictors and Aggressive Behaviour (Phase 2)

	1.	2.	3.	4.	5.
1. Aggressive Behaviour	1	-.08	-.06	-.43***	-.32**
2. Gender		1	-.02	.08	.14
3. SES			1	.29**	.13
4. Parenting Style				1	.20*
5. Child Affect Regulation (Parent-report)					1

* p < .05. ** p < .01. *** p < .001

A summary of the replication regression analysis is presented in Table 21. Simultaneous regression indicated that this model was significant, $F(5,74) = 5.12$, p < .001, R = .51, R^2 = .26, *Adjusted* R^2 = .21, and that this model explained 21% of the variance in Aggressive Behaviour.

Importantly, although the final model from Phase 1 was replicated in terms of overall significance in the Phase 2 sample, some differences were evident. Firstly, only two of the four variables identified in Phase 1 significantly contributed to explanation in Phase 2, namely Parenting Style and Child Affect Regulation (parent-report). Echoing zero-order correlations, β values suggested that only Parenting Style (t = -3.92, p < .001) and Child Regulation (parent-report; t = -2.08, p = .041) significantly contributed to variance in Aggressive Behaviour. Gender, SES, and the interaction between SES and Parenting Style did not significantly add explanation in Phase 2, except in combination. Secondly, whereas β values in Phase 1 suggested that Parenting Style was significant as a result of its interaction with SES, and not on its own, β values in Phase 2 suggested that of the measures included Parenting Style was the strongest predictor of Aggressive Behaviour.

Table 21

Summary of Replication Regression Analysis (Simultaneous Regression)

Variable	*B*	SE *B*	*β*	*t*	*Tolerance*	*R*	R^2	ΔR^2	*Adjusted* R^2
Step 1						.50	.26	.26*	.21
Gender	-.16	1.22	-.01	-.13	.97				
SES	.21	.25	.09	.85	.91				
Parenting Style	-.55	.14	-.42	-3.92**	.87				
Child Affect Regulation [a]	-.34	.17	-.23	-2.08*	.85				
Parenting Style*SES	-.02	.03	-.07	-.07	.89				

[a] Parent-report measure of Child Affect Regulation.

* $p < .05$. ** $p < .001$.

Summary of Similarities and Differences Across Phases 1 and 2 of Study 1

Sample Characteristics

A total of 160 young adolescents (aged 11-13 years) participated in Study 1; 80 in Phase 1 and 80 in Phase 2. Sample characteristics were similar across phases (i.e., no significant differences; see Table 14, p. 124). The only difference in characteristics across gender was in Working Memory, with Phase 1 participants scoring significantly higher than Phase 2 participants. These findings indicated that young adolescents who participated in Phase 1 could largely be considered demographically equivalent to those who participated in Phase 2 in terms of these sample characteristics.

Questionnaire Reliability

By and large, reliability of the questionnaires employed in Study 1 was acceptable. We see the same pattern of reliability values across Phase 1 and Phase 2. In both phases, reliability analyses highlight that the QCAE (both versions) and the CBCL (externalising subscale) yielded the best internal consistency reliability values, and that the reliability of the ASCQ yielded alpha values that were less than ideal (α = .63 in Phase 1 and α = .55 in Phase 2). As a result, although Attachment Style (ASCQ) was included as a potential predictor in regression analyses, findings were to be interpreted bearing this in mind. The remaining questionnaires yielded alpha values within an acceptable range in both phases. The consistency in findings across Phase 1 and Phase 2 supported the conclusion that the questionnaires employed in this phase of Study 1, barring the ASCQ perhaps, were reliably measuring what they were developed to measure in this South African sample (see Table 22).

Table 22

Internal Consistency of Study Questionnaires (Phase 1 vs. Phase 2)

Questionnaire	Number of Items	Cronbach's Alpha	
		Phase 1	Phase 2
Questionnaire of Cognitive and Affective Empathy (parent-report of child)	31	.90	.84
Affective subscale	12	.66	.73
Cognitive subscale	19	.90	.87
Questionnaire of Cognitive and Affective Empathy (parent self-report)	31	.87	.80
Affective subscale	12	.69	.61
Cognitive subscale	19	.83	.83
Affect Regulation Checklist (parent-report of child)	12	.72	.70
Affect Regulation Checklist (parent self-report)	12	.73	.75
Attachment Style Classification Questionnaire	15	.63	.55
Alabama Parenting Questionnaire (short-form)	9	.70	.66
Child Behaviour Checklist (externalising subscale)	36	.87	.84

Child Empathy and Its Correlates

Overall, in keeping with literature, girls scored higher than boys on all empathy measures (all 6 of them). There were, however, no significant differences across gender in Phase 1, and only one instance of significance in Phase 2 where girls scored significantly higher (parent-report of child Affective Empathy*)*.

Correlations between child measures of child empathy and parent-report measures of child empathy. In keeping with literature, the child measures of the three empathy components were not significantly correlated with the parent-report of child measures of the respective components in either of the phases. Several significant correlations between QCAE factors were present in Phase 1 but were absent in Phase 2.

Correlations between the Affect Regulation measures of child empathy, child characteristics, and SES. As the Affect Regulation component of empathy would tap into executive functioning, I was interested in its relation to participant characteristics. The relationship between child Affect Regulation measures and child characteristics (Age, Attention, Working Memory, and Intellectual Functioning) and SES was not consistent across Phases. However, the child measure of Affect Regulation (Snap Game) and SES were negatively correlated in both Phases, but only significantly so in the Phase 2 sample. This direction was unexpected. Furthermore, the parent-report measure of Affect Regulation (ARC) did not correlate significantly with any child characteristics or SES across Phases. Additionally, in keeping with literature, Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES across phases.

Correlations between child and parent empathy measures. In keeping with literature, measures of parent-report of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with measures of parent Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively, in both Phase 1 and Phase 2. Analyses therefore indicated that parent empathy may be important to consider given its association with child empathy.

Correlations between child empathy measures and parenting style. There was very little evidence of a relationship between child empathy measures and Parenting Style. In Phase 1, only the parent-report measure of Cognitive Empathy (QCAE, Cognitive subscale) was significantly positively associated with Parenting Style. In Phase 2, the child measure of Affect Regulation (Snap Game) was unexpectedly significantly negatively associated with Parenting Style. Aside from this, no further significant correlations were evident.

Correlations between child empathy measures and child attachment style. No significant correlations between any of the six child empathy measures and child Attachment Style were evident in either of the phases. Findings indicated that girls were significantly less secure in terms of Attachment Style in Phase 2 while there was no gender difference in Phase 1. However, given poor internal consistency of the ASCQ, and very high standard deviations for this measure, the reliability of this measure of attachment may be challenged. Attachment Style was still included in further analyses, bearing this in mind.

Aggressive Behaviour

The range of scores obtained from the CBCL (externalising subscale) in both phases was on the lower end of the total possible range, which is to be expected in a sample of typically developing individuals. These scores were approximately normally distributed. In both phases, boys scored higher than girls on Aggressive Behaviour, but only significantly so in Phase 1.

Multiple Regression Analyses: A Comparison of Model Building (Phase 1) and Replication Analyses (Phase 2)

Model building analyses in Phase 1 indicated that Gender, SES, Parenting Style, Child Affect Regulation (parent-report), and the interaction between SES and Parenting Style significantly predicted Aggressive Behaviour, and that together these variables explained 27% (*Adjusted* R^2 = .27) of the variance in Aggressive Behaviour in this sample. When this model was run via simultaneous regression in the Phase 2 sample, it was also significant, and explained 21% (*Adjusted* R^2 = .21) of the variance seen in Aggressive Behaviour. This suggested that in terms of empathy, only the Affect Regulation component, and not the Affective and Cognitive components, was a predictor of Aggressive Behaviour in young adolescents.

However, the final model accepted in Phase 1 was replicated only in part in the Phase 2 sample; some differences were evident. Firstly, analysis suggested that only two of the four variables identified in Phase 1 were responsible for the overall significance of the model in Phase 2, namely Parenting Style and Child Regulation. Secondly, β values suggested that Parenting Style was significant as a result of its interaction with SES in Phase 1, and not on its own, while β values suggested that Parenting Style was the strongest predictor of Aggressive Behaviour in Phase 2, and markedly so.

To summarize, in terms of Child Empathy, findings indicated that Affect Regulation (parent-report) is an important predictor of Aggressive Behaviour. While the β values for Affective Empathy (parent-report) and Cognitive Empathy (parent-report) were similar in strength to those of the significant predictors in Phase 1 analyses, they were not significant. In terms of other predictors, Gender, SES, Parenting Style, and the interaction between SES and Parenting Style in Phase 1 were flagged as important to consider. While the 'final model' from Phase 1 was replicated in part in the Phase 2 sample (i.e., the overall model was significant), some differences were noted across samples. Additional post-hoc analyses were therefore conducted to clarify unanswered questions (see Chapter Nine).

CHAPTER SEVEN.
RESULTS: STUDY 2

The overarching goal of Study 2 was to investigate the relationship between empathy and aggressive behaviour in typically developing children (aged 6-8 years) living in the Western Cape of South Africa, with the additional aim of identifying differences in contributors across age bands (i.e., when qualitatively compared to Study 1 findings; 6-8 years vs. 11-13 years). Informed largely by international findings, I hypothesized that (1) Empathy as conceptualised in this dissertation (i.e., comprising Affective, Cognitive, and Affect Regulation components) would be associated with Aggressive Behaviour in this sample. However, the literature reviewed illustrates that the relationship between affective and cognitive empathy and aggressive behaviour is very poorly understood in children. I therefore hypothesized that (2) both Affective and Cognitive empathy could be associated with Aggressive Behaviour. In specific, I expected reduced Cognitive Empathy to be associated with increased Aggressive Behaviour, and increased Affective Empathy to be associated with increased Aggressive Behaviour. Furthermore, given the consistent relationship between affect regulation and aggressive behaviour demonstrated in the literature, I hypothesized that (3) the Affect Regulation component of empathy (measured by affect regulation style in this dissertation) would be associated with Aggressive Behaviour; I expected poorer affect regulation style to be associated with increased Aggressive Behaviour. Finally, I hypothesized that the relationship between Empathy (i.e., the components thereof) and Aggressive behaviour would manifest differently across age bands (i.e., young adolescents vs. children).

To test these hypotheses, the role of Empathy was explored while concurrently investigating the role of several other factors known to be related to empathy and/or aggressive behaviour, namely SES, Age, Gender, Intellectual Functioning, Attention, Working Memory, Parent Empathy, Parenting Style, and Attachment Style. As in Study 1, I hypothesized that these factors (at least some of them) would also be associated with Aggressive Behaviour in this South African sample. Again, only two specific hypotheses were posited given previous investigation in South African contexts. I hypothesized that (4) lower SES would be associated with increased Aggressive Behaviour and (5) negative Parenting Style would be associated with increased Aggressive Behaviour.

Informed by previous theory, I proposed a model for explaining Aggressive Behaviour in a group of children (aged 6-8 years, $n = 76$), who aside from Age were

demographically equivalent to the young adolescent samples in Study 1. This model was tested in hierarchical fashion to build a model which best explains Aggressive Behaviour in this sample.

Results from Study 2 are presented below. Sample characteristics are presented first, followed by questionnaire reliability analyses (i.e., before further analyses). I then present descriptive and bivariate analyses. This is followed by model building analyses. To conclude, I provide a summary of the similarities and differences in findings across Study 1 and Study 2.

Building a Model to Investigate the Predictors of Aggressive Behaviour in Children

Sample Characteristics

Table 23 summarizes the demographic and background characteristics of Study 2 participants, and also presents a breakdown of characteristics across gender. Seventy six coloured children (n = 76, age range 6-8 years) and their parents participated in Study 2. Within this sample, as in Study 1, participants were stratified across Age, Gender, and SES (see Figure 15 in Appendix A). All children received their schooling in English, and their home language was English, Afrikaans, or both. Mean scores for Intellectual Functioning, Attention, and Working Memory were once again lower than Western population norms.

Table 23 also presents a breakdown of sample characteristics across gender. As can be seen, a roughly equal number of male and female children participated (n = 37 and n = 39, respectively), and no significant gender differences were identified for any of the sample characteristics. Aside from age, this child sample was demographically equivalent to Study 1 Phase 1 and Phase 2 adolescent samples.

Table 23

Sample Characteristics (Study 2)

Characteristic	Group			Significance Across Gender		
	Male (*n*=37)	Female (*n*=39)	Overall (*n*=76)	t/χ^2	*p*	*d*/*V*
Age						
Range (years: months)	6:0-8:10	6:0-8:11	6:0-8:11	-	-	-
M (*SD*) (years)	7.23 (0.94)	7.32 (0.91)	7.28 (0.92)	-0.42	.677	.10
Home Language						
English: Afrikaans: English and Afrikaans	29: 2: 6	34: 1: 4	63: 3: 10	1.17 [a]	.547	.12
Intellectual Functioning [b]						
M (*SD*)	91.51 (14.63)	89.05 (11.65)	90.25 (13.16)	0.82	.418	.19
Attention [c]						
M (*SD*)	8.22 (2.53)	9.26 (2.63)	8.75 (2.62)	-1.76	.083	.40
Working Memory [c]						
M (*SD*)	7.51 (4.01)	7.82 (2.69)	7.67 (3.38)	-0.39	.695	.09
Socioeconomic Status Index [d]						
Range	-5.57-4.25	-6.44-3.70	-6.44-4.25	-	-	-
M (*SD*)	-0.24 (2.75)	0.23 (2.44)	0 (2.59)	0.79	.432	.18

[a] FET. [b] Standardised scores are presented: The Vocabulary and Matrix Reasoning subtests of the *WASI* (Weschler, 1999) were used to obtain a short-form index of intellectual functioning. A higher score indicates better performance. [c] Standardised scores are presented: The Digit Span subtest of the *WISC-IV* (Weschler, 2004) was used as an index of Attention (i.e., digits forward) and Working Memory (i.e., digits backward). [d] A standardized composite SES index was calculated from three indices, namely total yearly household income, mother's highest level of education, and material and financial resources.

Questionnaire Reliability

The reliability of questionnaires employed in Study 2 was assessed using Cronbach's alpha (see Table 24). As can be seen in Table 24, Cronbach's α values ranged from .58 – .92. As in Study 1, lower values corresponded with questionnaires and subscales comprising fewer items and a similar pattern of alpha values emerged.

Table 24
Internal Consistency of Study Questionnaires (Study 2)

Questionnaire	Number of Items	Cronbach's α
Questionnaire of Cognitive and Affective Empathy (parent-report of child)	31	.88
Affective subscale	12	.60
Cognitive subscale	19	.92
Questionnaire of Cognitive and Affective Empathy (parent self-report)	31	.82
Affective subscale	12	.63
Cognitive subscale	19	.83
Affect Regulation Checklist (parent-report of child)	12	.61
Affect Regulation Checklist (parent self-report)	12	.79
Attachment Style Classification Questionnaire	15	.58
Alabama Parenting Questionnaire (short-form)	9	.62
Child Behaviour Checklist (externalising subscale)	36	.89

As illustrated in Table 24, the QCAE (both versions) and the CBCL (externalising subscale) had high internal consistency in this sample, yielding Cronbach's alpha values of .82 – 89. As in Study 1 analyses (both phases) reliability analyses of the QCAE (both versions) indicated high internal consistency for overall dispositional empathy, and a pattern emerged where alpha values were lower for the Affective subscales than Cognitive subscales. Furthermore, as expected, the externalising subscale of the CBCL also had high internal consistency. Again, as in Study 1, the ASCQ performed below the threshold of .65 set for this dissertation (α = .58). Additionally, the Affective subscale of the QCAE (parent-report of child version), the ARC (parent-report of child version), and the APQ (short-form) now also performed below the acceptable threshold (α = .61). The remaining questionnaire performed acceptably (α = .79). Furthermore, as in Study 1, item analyses indicated that the removal of problematic items would not improve or only slightly improve internal consistency of questionnaires. These findings supported the conclusion that while some questionnaires employed in Study 2 were reliably measuring what they were developed to measure in this South African sample, others may not be as appropriate for use in younger children as in

young adolescents. Findings concerning the questionnaires yielding alpha values below .65 in particular were to be interpreted bearing this in mind.

Child Empathy and its Correlates

Descriptive statistics of children's performance on five of the six child empathy measures in the sample (n = 76) as well as across gender are presented in Table 25. Note that the child measure of Affect Regulation (Snap Game) was omitted here as well as from further analyses as not all children were able to complete this task given difficulty with comprehension of instructions. In keeping with findings from Study 1, girls scored slightly higher on almost all measures of empathy. In this sample, girls scored significantly higher on parent-report of Affective empathy (M = 7.44, SD = 6.80) than boys (M = 3.73, SD = 7.87), $t(74) = -2.20$, $p = .031$, $d = .50$. As in Study 1, standard deviations for the QCAE were higher than ideal.

Correlations between child measures of child empathy and parent-report measures of child empathy. Correlations between child measures of child empathy and parent-report measures of child empathy are presented in Table 26. In keeping with findings from Study 1, the child measure and parent-report measure of Affective empathy and the child measure and parent-report measure of Cognitive Empathy were not significantly correlated. In terms of intercorrelations, the child Affective Empathy measure (Empathy for Pain task) and the child Cognitive Empathy measure (ToM battery) were significantly positively correlated (not found in Study 1). Furthermore, QCAE factors were not significantly correlated, as in Study 1.

Table 25

Descriptive Statistics of Child Empathy Measures (Study 2)

Empathy Component	Measure	Domain	Group			Significance Across Gender		
			Male (*n*=37)	Female (*n*=39)	Overall (*n*=76)	*t*	*p*	*d*
Affective								
Child task	Empathy for Pain Task	Affective Sharing	85.36 (12.62)	86.53 (10.71)	85.96 (11.62)	-0.44	.664	.10
Parent-report	QCAE	Dispositional Affective Empathy	3.73 (7.87)	7.44 (6.80)	5.63 (7.52)	-0.22	.031*	.50
Cognitive								
Child task	UCT ToM Battery	Theory of Mind	52.68 (19.79)	59.73 (16.77)	56.30 (18.52)	-1.68	.098	.38
Parent-report	QCAE	Dispositional Cognitive Empathy	0.75 (11.80)	-0.42 (10.05)	0.15 (10.88)	0.47	.642	.11
Regulation								
Parent-report	ARC	Regulatory Control	15.03 (3.39)	15.67 (4.42)	15.36 (3.94)	-0.71[a]	.480	.16

Note. Means presented with standard deviations in parentheses. UCT = University of Cape Town; ToM = Theory of Mind; QCAE = Questionnaire of Cognitive and Affective Empathy; ARC = Affect Regulation Checklist.

[a] Values for equal variances not assumed presented (Levene's test: $p = .032$)

* $p < .05$.

Table 26
Correlations Between Child Measures of Child Empathy and Parent-Report Measures of Child Empathy (Study 2)

Empathy Measure	1.	2.	3.	4.	5.
1. Affective (Child task)	1	.27*	.20	.20	-.01
2. Cognitive (Child task)		1	.04	.02	.02
3. Affective (Parent-report)			1	.18	.02
4. Cognitive (Parent-report)				1	.10
5. Affect Regulation (Parent-report)					1

Note. While the relationship between child and parent-report of child Affect Regulation measures could not be assessed, correlations between the parent-report Affect Regulation measure and the other child empathy measures are presented.
* $p < .05$.

Correlations between the Affect Regulation measure of child empathy, child characteristics, and SES. Correlations between the parent-report of child Affect Regulation measure (ARC) and participant characteristics are presented in Table 27. As can be seen, this Affect Regulation measure was significantly negatively correlated with Age, suggesting that as Age increased children were more likely to present with poorer Affect Regulation. The direction of this correlation was unexpected. In terms of intercorrelations, as expected, Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES. Aside from this, Age and Working Memory were significantly moderately positively correlated. While this appears intuitive, this finding was not expected as scaled scores were employed for Attention, Working Memory and Intellectual Functioning. Age should therefore not be correlated with these three measures.

Table 27
Correlations Between the Parent-Report Measure of Child Affect Regulation (ARC), Child Characteristics, and SES (Study 2)

Measure	1.	2.	3.	4.	5.	6.
1. Affect Regulation (Parent-report)	1	-.19*	-.13	.05	.05	.14
2. Age		1	-.04	-.06	.30**	.09
3. Intellectual Functioning			1	.26*	.40***	.47***
4. Attention				1	.18	.18
5. Working memory					1	.11
6. SES						1

* $p < .05$. ** $p < .01$. *** $p < .001$.

Correlations between child and parent empathy measures. Correlations between parent-report of child empathy and parent empathy (self-report) measures are presented in Table 28. In keeping with findings from Study 1, measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with measures of parent Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively. The strongest relationship was between Affect Regulation measures followed by Cognitive Empathy measures and finally Affective Empathy measures. In terms of intercorrelations, as expected, parent Affective and Cognitive Empathy and parent Affective and child Cognitive Empathy were significantly positively correlated. Additionally, parent Affective Empathy and Parent Affect Regulation were significantly negatively correlated, as in Phase 2 of Study 1.

Table 28
Correlations Between Child and Parent Empathy Measures (Study 2)

Empathy Measure	1.	2.	3.	4.	5.	6.
1. Child Cognitive	1	.36**	.18	.16	.10	.03
2. Parent Cognitive		1	.12	.26*	.03	.17
3. Child Affective			1	.25*	.02	-.07
4. Parent Affective				1	-.18	-.26*
5. Child Affect Regulation					1	.51***
6. Parent Affect Regulation						1

* $p < .05$. ** $p < .01$. ***$p < .001$.

Correlations between child empathy measures and parenting style. A correlation analysis indicated that the only significant correlation between any of the five child empathy measures and Parenting Style was between the parent-report of child Affect Regulation measure (ARC) and Parenting Style ($r = .23$, $p = .048$). An independent samples *t*-test indicated that although males' parents scored slightly higher on Parenting Style (i.e., more positive; $M = 37.86$, $SD = 4.31$) than females' ($M = 37.05$, $SD = 3.59$), this difference was not significant, $t\ (74) = .90$, $p = .373$, $d = .20$. This latter finding was in keeping with Study 1 findings.

Correlations between child empathy measures and child attachment style. In contrast to Study 1 findings, correlation analysis indicated that child Attachment Style was significantly correlated with the parent-report Affect Regulation measure (ARC; $r = .48$, $p < .001$), suggesting that more secure Attachment Style was associated with better Affect

Regulation. No other significant correlations were seen. Furthermore, as in Phase 1 of Study 1, an independent samples *t*-test indicated that although males scored slightly higher on Attachment Style (i.e., more secure; $M = 6.78$, $SD = 4.84$) than females ($M = 5.77$, $SD = 6.03$), this difference was not significant, $t(74) = .81$, $p = .423$, $d = .18$.

Aggressive Behaviour

As was expected from a typically developing sample, and in keeping with findings from Study 1, children scored on the lower end of the total possible range (i.e., out of a possible 72) in this sample (range: 0-29) and also in the male (range: 0-24) and female subgroups (range: 0-33). The scores within each group were approximately normally distributed within their respective ranges. An independent samples *t*-test indicated that although females scored slightly higher on Aggressive Behaviour ($M = 11.31$, $SD = 8.97$) than males ($M = 10.92$, $SD = 7.06$), this difference was not significant, $t(74) = -0.21$, $p = .835$, $d = .05$. The absence of a significant difference was unexpected.

Interim summary: Seventy-six typically developing coloured children ($n = 76$, age range 6-8 years) and their parents participated in Study 2. Within this sample, child participants were stratified across Age, Gender, and SES, and a roughly equal number of males and females participated ($n = 37$ and $n = 39$, respectively). No significant gender differences were identified for sample characteristics. Furthermore, girls scored significantly higher on only one of the six child empathy measures (parent-report Affective Empathy). Contrary to expectations, girls unexpectedly scored slightly higher on Aggressive Behaviour but this difference was not significant.

In terms of empathy correlates, (1) child measures of child empathy and parent-report measures of child empathy were not significantly correlated (i.e., measures of Affective and Cognitive Empathy); (2) the only significant correlation between child Affect Regulation and child characteristics (Age, Attention, Working Memory, Intellectual Functioning) and SES was an unexpected negative correlation with Age. As expected, Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES; (3) measures of parent-report of child Affective Empathy, Cognitive Empathy, and Affect Regulation were positively correlated with measures of parent self-report of Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively; (4) child Affect Regulation (parent-report measure) and Parenting Style were significantly positively correlated; and (5) child Affect Regulation (parent-report measure) and child Attachment Style were significantly positively

correlated. For the most part, these findings were in keeping with Study 1 findings (a detailed summary of the similarities and differences across studies to follow after regression analyses).

Multiple Regression Analyses: Model Building Analyses to Investigate the Role of Empathy and Other Predictors of Aggressive Behaviour in Children

Hierarchical multiple regression analysis was conducted to examine the relationship between Aggressive Behaviour and various potential predictors. Informed by previous theory (for the most part based on international research), I proposed a model for predicting Aggressive Behaviour in a group of children aged 6-8 years (n = 76). As can be seen in Figure 5 (re-presented here), this model is identical to the model initially tested in Phase 1 of Study (rationale presented earlier). As in Phase 1 of Study 1, I tested this model in hierarchical fashion (step-by-step) to build a model which best predicts Aggressive Behaviour in this sample. Variables that added significant change in explanation were retained in the model. Those variables which were investigated as part of an interaction were retained until interactions were assessed, regardless of individual contributions. Model building was also informed to some extent also by earlier bivariate analyses (i.e., in this dissertation).

Child Characteristics (i.e., Age, Attention, Working Memory, and Intellectual Functioning) were entered together in Step 1, Gender was entered in Step 2, and SES in Step 3. Everyday contexts were entered subsequent to this. In Step 4, I entered Parenting Style, in Step 5 Attachment Style, and in Step 6 Parent Empathy measures (i.e., Cognitive, Affective, and Affect Regulation). Child Empathy was then entered as it was expected that Child Empathy would explain variance over and above the contributions of the previously entered variables. In Step 7, I entered child measures of Child Empathy (i.e., Cognitive and Affective) and in Step 8 parent-report measures of Child Empathy (i.e., Cognitive, Affective, and Affect Regulation). Finally, to assess whether the interaction between SES and Intellectual Functioning and the interaction between SES and Parenting Style were further contributing to explaining Aggressive Behaviour, I added these interactions separately in Steps 9 and 10.

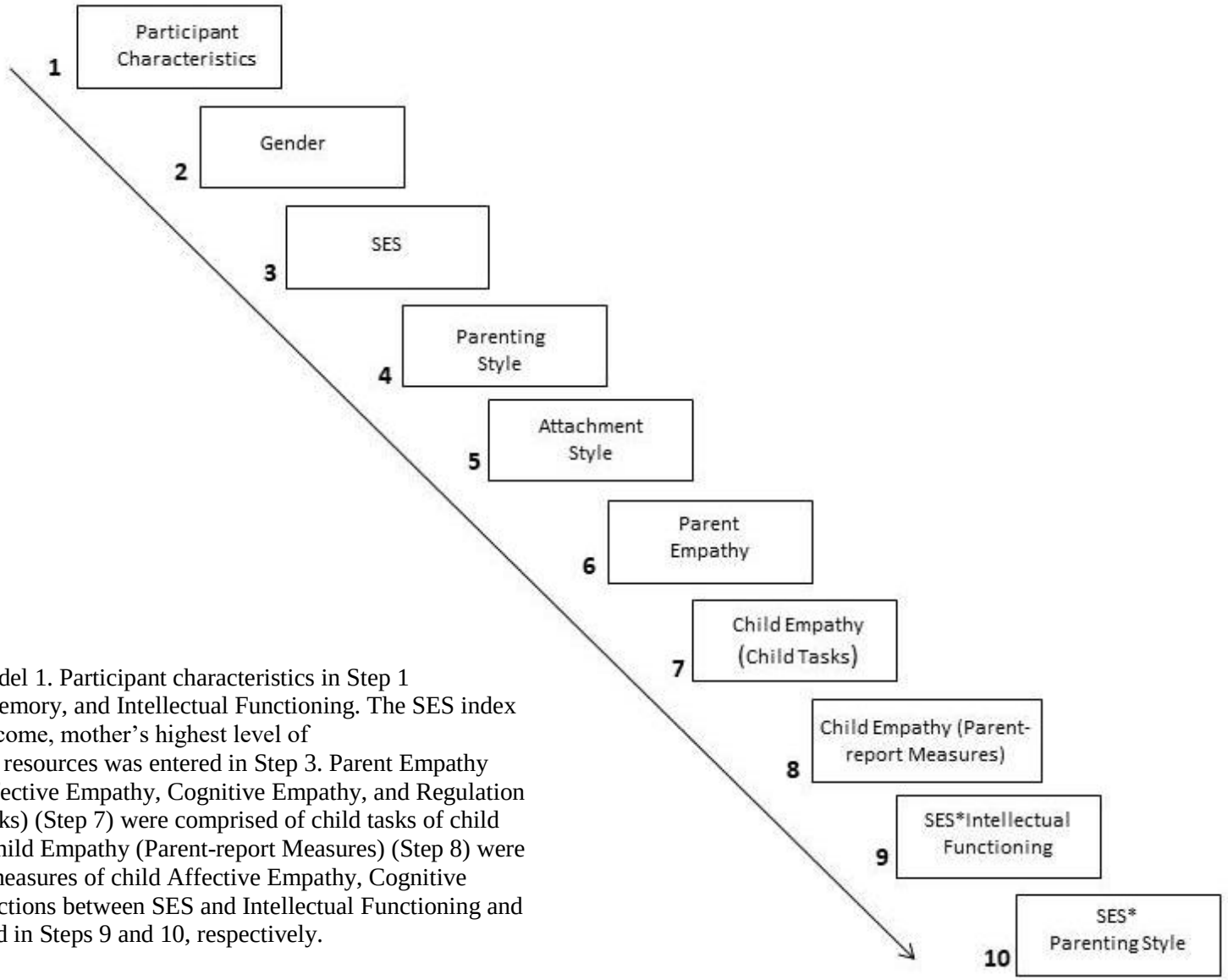

Figure 5. Hierarchical regression Model 1. Participant characteristics in Step 1 included Age, Attention, Working Memory, and Intellectual Functioning. The SES index comprising total yearly household income, mother's highest level of education, and material and financial resources was entered in Step 3. Parent Empathy (Step 6) was comprised of parent Affective Empathy, Cognitive Empathy, and Regulation measures. Child Empathy (Child Tasks) (Step 7) were comprised of child tasks of child Affective and Cognitive Empathy. Child Empathy (Parent-report Measures) (Step 8) were comprised of parent-report of child measures of child Affective Empathy, Cognitive Empathy, and Regulation. The interactions between SES and Intellectual Functioning and SES and Parenting Style were entered in Steps 9 and 10, respectively.

Table 29 presents the intercorrelations between Aggressive Behaviour and the various potential predictors. As can be seen, only two zero-order correlations with the outcome variable were significant, namely Parenting Style (r = -.42, p < .001) and Child Affect Regulation (r = -.23, p = .023; parent-report), while Working Memory was approaching significance (r = -.19, p = .050). As expected, several significant correlations between potential predictors were present.

Table 29

Intercorrelations Between Aggressive Behaviour and Potential Predictors (Study 2)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Aggression [a]	1	- .01	-.13	.13	-.19	.02	-.09	-.42***	-.01	.15	.06	-.14	-.02	.04	.15	-.17	-.23*
2. Age		1	-.04	-.06	.30**	.05	.09	.15	-.12	.16	.08	.02	.31**	.61***	.03	-.01	-.19*
3. Intellectual Functioning [b]			1	.26*	.40***	-.09	.47***	.11	.20*	-.07	.22*	.31**	.09	.23**	.11	.17	.13
4. Attention [c]				1	.18	.20*	.18	-.06	.01	-.03	.06	.07	.03	.24**	.16	.03	.05
5. Working Memory					1	.05	.11	.12	-.01	.15	.17	.11	.12	.47***	.02	.15	.05
6. Gender						1	.09	-.10	-.10	.01	.01	.03	.05	.19*	.25*	-.05	.08
7. SES							1	.04	.12	-.08	.22*	.28**	.14	.32**	.03	-.25*	.14
8. Parenting Style								1	.09	-.09	.10	.31**	-.05	.12	-.04	.19	.23*
9. Attachment Style									1	-.14	-.01	.32**	-.14	.05	.03	-.01	.48***
10. Parent Cognitive Empathy										1	.25*	-.26*	.18	.11	.25*	.16	-.18
11. Parent Affective Empathy											1	.17	.01	.15	.12	.36**	.03
12. Parent Affect Regulation												1	-.05	.09	-.07	.03	.51***
13. Child Affective Empathy (Child task)													1	.27**	.20*	.20*	-.01
14. Child Cognitive Empathy (Child task)														1	.04	.02	.02
15. Child Affective Empathy (Parent-report)															1	.18	.02
16. Child Cognitive Empathy (Parent-report)																1	-.03
17. Child Affect Regulation (Parent-report)																	1

Note. Parent Affective Empathy, Cognitive Empathy, and Affect Regulation refer to Dispositional Affective Empathy, Dispositional Cognitive Empathy and Affect Regulation Style, taken from the parent self-report version of the QCAE and ARC respectively. Similarly, this holds for Child Affective Empathy, Cognitive Empathy, and Affect Regulation as well. The child measures of Child Empathy are Empathy for Pain and Theory of Mind, respectively.

[a] Scores taken from the externalising subscale of the Child Behaviour Checklist. [b] Scores taken from the Vocabulary and Matrix Reasoning subtests of the WASI (Weschler, 1999) were used to obtain a short-form index of intellectual functioning. A higher score indicates better performance. Standardised scores are presented. [c] Scores taken from Digit Span subtest of the WISC-IV: Digits forwards for Attention and digits backward for Working Memory.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Steps 1 – 8. A summary of Steps 1 – 8 regression analyses are presented in Table 30. Note that statistics for excluded steps and variables are presented in-text while statistics for retained steps and variables are presented in Table 30. To start with, in Step 1 I investigated whether Child Characteristics (i.e., Age, Attention, Working Memory, and Intellectual Functioning) predicted Aggressive Behaviour. These four variables were entered as a block. This model was not significant, $F(4, 71) = 1.27$, $p = .222$, $R = .28$, $R^2 = .08$, *Adjusted* $R^2 = .02$. Together Child Characteristics did not yield a significant change in explained variance. These variables as a group (i.e., Child Characteristics) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$). Findings suggested that these variables therefore be excluded from the final model. Intellectual Functioning was, however, retained as I was interested in the interaction between SES and Intellectual Functioning (to be added in Step 9).

Gender was added in Step 2. This model was not significant, $F(2, 73) = .63$, $p = .535$, $R = .13$, $R^2 = .02$, *Adjusted* $R^2 < .01$. Gender (*Sig.* $\Delta F = .917$, Δ *Adjusted* $R^2 < .01$) did not yield a significant change in explained variance and was therefore not retained in the model.

SES was added in Step 3. This model was not significant, $F(2, 73) = .66$, $p = .519$, $R = .13$, $R^2 = .02$, *Adjusted* $R^2 < .01$. SES (*Sig.* $\Delta F = .788$, Δ *Adjusted* $R^2 < .01$) did not yield a significant change in explained variance. SES was, however, retained as I was interested in the interaction between SES and Intellectual Functioning (to be added in Step 10).

Parenting Style was added in Step 4. This model was significant, $F(3, 72) = 5.37$, $p = .002$, $R = .43$, $R^2 = .18$, *Adjusted* $R^2 = .15$. Parenting Style (*Sig.* $\Delta F < .001$, Δ *Adjusted* $R^2 = .15$) yielded a significant change in explained variance (i.e., 15%), and was therefore retained in the model.

Attachment Style was added in Step 5. This model was significant, $F(4, 71) = 4.04$, $p = .005$, $R = .43$, $R^2 = .19$, *Adjusted* $R^2 = .14$. However, Attachment Style (*Sig.* $\Delta F = .641$, Δ *Adjusted* $R^2 < .01$) did not yield a significant change in explained variance, and was therefore not retained in the model.

Parent Empathy variables (i.e., Affective, Cognitive, and Affect Regulation) were added in Step 6 as a block. This model was significant, $F(6, 69) = 2.96$, $p = .012$, $R = .45$, $R^2 = .21$, *Adjusted* $R^2 = .14$. However, Parent Empathy (*Sig.* $\Delta F = .591$) did not yield a significant change in explained variance. These variables as a group (i.e., Parent Empathy) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$). Parent Empathy variables were therefore excluded from the model.

Child measures of Child Empathy variables (i.e., Affective and Cognitive) were added in Step 7 as a block. This model was significant, $F(5, 70) = 3.51$, $p = .007$, $R = .48$, $R^2 = .20$, *Adjusted* $R^2 = .14$. However, these child measures of Child Empathy (*Sig.* $\Delta F = .461$) did not yield a significant change in explained variance. These variables as a group (i.e., child measures of Child Empathy) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$), ensuring their exclusion from the model.

Parent-report measures of Child Empathy variables (i.e., Affective, Cognitive, and Affect Regulation) were added in Step 8 as a block. This model was significant, $F(6, 69) = 3.49$, $p = .004$, $R = .48$, $R^2 = .23$, *Adjusted* $R^2 = .17$. However, these parent-report measures of Child Empathy (*Sig.* $\Delta F = .221$) did not yield a significant change in explained variance. These variables as a group (i.e., child measures of Child Empathy) as well as individually did not appear to contribute significantly to Aggressive Behaviour (*t*-values all $p > .05$), ensuring their exclusion from the model.

Table 30
Summary of Steps 1-8 Regression Analyses

	B	SE *B*	*β*	*T*	*Tolerance*	*R*	R^2	ΔR^2	*Adjusted* R^2
Step 1						.13	.02	.02	.01
Intellectual Functioning	-.08	.07	-.13	-1.13	1.00				
Step 3						.13	.02	.01	< .01
Intellectual Functioning	-.07	.08	-.11	-.86	.78				
SES	-.11	.41	-.04	-.27	.78				
Step 4						.43	.18	.16*	.15
Intellectual Functioning	-.04	.07	-.06	-.53	.77				
SES	-.13	.38	-.04	-.37	.78				
Parenting Style	-.83	.22	-.41	-3.81**	.99				

* $p < .01$. ** $p < .001$.

Steps 9 – 10. The interaction between Intellectual Functioning and SES was added in Step 9. While this model was significant, $F(4, 71) = 4.16$, $p = .004$, $R = .44$, $R^2 = .19$, *Adjusted* $R^2 = .14$, the interaction between Intellectual Functioning and SES (*Sig.* $\Delta F = .429$) did not yield a change in explained variance. This interaction was therefore not retained in the model and there was consequently no reason to retain Intellectual Functioning in the model (see Step 1).

Finally, the interaction between Parenting Style and SES was added in Step 10. While this model was significant, $F(4, 71) = 4.29$, $p = .004$, $R = .44$, $R^2 = .19$, *Adjusted* $R^2 = .15$, the interaction between Parenting Style and SES (*Sig.* $\Delta F = .313$) did not yield a significant change in explained variance and there was consequently no reason to retain SES in the model (see Step 3).

Findings suggested that of the measures used only Parenting Style was a significant predictor of Aggressive Behaviour in this child sample; that a simple regression with only Parenting Style as predictor was the best solution. This model was statistically significant, $F(4, 71) = 15.62$, $p < .001$, $r = .42$, $r^2 = .17$, *Adjusted* $r^2 = .16$, and indicated that Parenting Style explained 16% of the variance in Aggressive Behaviour. Importantly, in terms of the role of empathy, none of the empathy components played a role in predicting Aggressive Behaviour in this sample of typically developing coloured children living in the Western Cape of South Africa.

Summary of Similarities and Differences Across Study 1 and 2

Sample Characteristics

A total of 160 young adolescents (aged 11-13 years) participated in Study 1 (80 in Phase 1 and 80 in Phase 2). A total of 76 children (aged 6-8 years) participated in Study 2. In each of these samples, participants were stratified according to Age, Gender, and SES (see Appendix A).

Questionnaire Reliability

As can be seen in Table 31, we see the same pattern of reliability values across Study 1 Phase 1, Study 1 Phase 2, and Study 2. In each of these instances the QCAE (both versions) and the CBCL (externalising subscale) yielded the best internal consistency reliability values. Additionally, a pattern emerged where alpha values were lower for the affective subscales of the QCAE than cognitive subscales. Furthermore, across samples the ASCQ yielded alpha values that were less than ideal (α = .63 in Study 1 Phase 1, α = .55 in Study 1Phase 2, α = .58 in Study 2). Findings concerning the ASCQ were therefore to be interpreted tentatively.

In terms of differences, aside from the ASCQ, the remainder of the questionnaires employed in Study 1 performed within an acceptable range. In contrast, three questionnaires aside from the ASCQ performed below the threshold for alpha (i.e., <.65), namely the Affective subscale of the QCAE (parent-report of child version), the ARC (parent-report of child version), and the APQ (short-form). These findings suggested that these three questionnaires may be more appropriate for young adolescent samples (11-13 year olds) than for child samples (6-8 year olds).

Table 31

Internal Consistency of Study Questionnaires (Study 1 vs. Study 2)

Questionnaire	Number of Items	Cronbach's α		
		Study 1: Phase 1	Study 1: Phase 2	Study 2
Questionnaire of Cognitive and Affective Empathy (parent-report of child)	31	.90	.84	.88
Affective subscale	12	.66	.73	.60
Cognitive subscale	19	.90	.87	.92
Questionnaire of Cognitive and Affective Empathy (parent self-report)	31	.87	.80	.82
Affective subscale	12	.69	.61	.63
Cognitive subscale	19	.83	.83	.83
Affect Regulation Checklist (parent-report of child)	12	.72	.70	.61
Affect Regulation Checklist (parent self-report)	12	.73	.75	.79
Attachment Style Classification Questionnaire	15	.63	.55	.58
Alabama Parenting Questionnaire (short-form)	9	.70	.66	.62
Child Behaviour Checklist (externalising subscale)	36	.87	.84	.89

Child Empathy and its Correlates

Overall, in keeping with literature, girls generally scored higher than boys on empathy measures. There were, however, no significant differences across gender in Study 1 Phase 1, one instance of significance in Phase 2 where girls scored significantly higher (parent-report of child Affective Empathy), and one instance of significance in Study 2 where girls scored significantly higher (parent-report of child Affective Empathy). Furthermore, standard deviations for the QCAE and the Snap Game indicated a large spread across all samples.

Correlations between child measures of child empathy and parent-report measures of child empathy. In keeping with literature, the child measures of the three components of child empathy were not significantly correlated with the parent-report measures of the respective components across samples. The only intercorrelations evident were in Phase 1 of Study 1 where the child measure of Affective Empathy (Empathy for Pain task) and the child measure of Affect Regulation (Snap Game) as well as the parent-report measures of Affective and Cognitive Empathy (i.e., QCAE factors) were positively correlated.

Correlations between Affect Regulation measures of child empathy, child characteristics, and SES. The relationship between child Affect Regulation measures and child characteristics (Age, Attention, Working Memory, and Intellectual Functioning) and SES was inconsistent across samples. While there were no significant correlations in Phase 1 of Study 1, the child measure of Affect Regulation (Snap Game) was significantly negatively correlated with SES in Phase 2 of Study 1, and the parent-report measure of Affect Regulation (ARC) was significantly negatively correlated with Age in Study 2. In keeping with literature, Intellectual Functioning was significantly positively correlated with Attention, Working Memory, and SES across all three samples.

Correlations between child and parent empathy measures. In keeping with literature, parent-report measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation were significantly positively correlated with self-report measures of parent Affective Empathy, Cognitive Empathy, and Affect Regulation, respectively, across all three samples. Analyses therefore indicated that parent empathy is important to consider given its association with child empathy.

Correlations between measures of child empathy and parenting style. There was very little evidence of a relationship between child empathy measures and Parenting Style across samples. The parent-report measure of child Cognitive Empathy (QCAE Cognitive subscale) was correlated with Parenting Style in Phase 1 of Study 1, the child measure of

child Affect Regulation (Snap Game) was correlated with Parenting Style in Phase 2 of Study 1, and the parent-report measure of child Affect Regulation (ARC) was correlated with Parenting Style in Study 2. Furthermore, across samples, there were no significant differences in Parenting Style across Gender.

Correlations between measures of child empathy and child attachment style. Correlation analyses indicated that none of the child empathy measures were correlated with child Attachment Style in Study 1 (i.e., in both phases). In the Study 2 sample, however, child Attachment Style was significantly correlated with the parent-report of child measure of Affect Regulation (ARC). Furthermore, while there were no significant differences in child Attachment Style across Gender in Phase 1 of Study 1 and Study 2, males scored significantly higher on Attachment Style than females in Phase 2 of Study 1 (i.e., males were more secure). Worth noting here is that given poor internal consistency of the ASCQ, and very high standard deviations for this measure, the reliability of this measure may be challenged. Attachment Style was still included in analyses, but findings were to be interpreted bearing this in mind.

Aggressive Behaviour

The range of scores obtained from the CBCL (externalising subscale) in all three samples was on the lower end of the total possible range, which is to be expected in a sample of typically developing children and young adolescents. In each of these samples, these scores were approximately normally distributed. In Study 1, boys scored higher than girls on Aggressive Behaviour, but only significantly so in Phase 1. In Study 2, girls scored higher than boys, but not significantly so.

Regression Analyses: Predictors Identified Across Study 1 and 2

Regression analyses in Study 1 indicated that, in terms of Child Empathy, parent-report of child Affect Regulation predicted Aggressive Behaviour in young adolescents. There was also some evidence that parent-report of child Affective Empathy and parent-report of child Cognitive Empathy may be worth further investigating as predictors in this sample. In terms of other predictors, Gender, SES, Parenting Style, and the interaction between Parenting Style and SES were flagged as significant predictors of Aggressive Behaviour. Analyses consistently highlighted the predictive value of Parenting Style and child Affect Regulation (parent-report) as predictors of Aggressive Behaviour in young adolescents living in the Western Cape of South Africa.

Regression analyses in Study 2 indicated that, in terms of Child Empathy, none of the components of Child Empathy predicted Aggressive Behaviour. In terms of other predictors, of the measures used, only Parenting Style significantly predicted Aggressive Behaviour in children living in the Western Cape of South Africa.

In sum, findings indicated that Child Empathy (i.e., components thereof) played a role in predicting Aggressive Behaviour in young adolescents living in the Western Cape of South Africa, but not in children. Child Affect Regulation and Parenting Style consistently predicted Aggressive Behaviour in young adolescents, while Gender, SES, and the interaction between SES and Parenting Style were flagged as important to consider in this sample. In contrast, of the measures used only Parenting Style significantly predicted Aggressive Behaviour in children.

Importantly, findings leave us with some unanswered questions. Firstly, the roles of Child Affective and Child Cognitive Empathy in young adolescents were unclear; Child Affective and Cognitive Empathy were not highlighted as significant predictors despite β values similar in strength to other significant predictors. Secondly, while findings suggested that SES is important to consider, its role was unclear. To elaborate, the interaction between SES and Parenting Style significantly predicted Aggressive Behaviour in Phase 1 of Study 1, while this interaction did not predict Aggressive Behaviour in Phase 2 of Study 1. SES on its own also did not appear to contribute to the significance of the overall model in Phase 2 of Study 1, while doing so in Phase 1. Worth noting is that a composite measure of SES was employed, and that deconstructing this composite into its SES indicators may well provide a clearer picture of the role of SES. Finally, while Parent and Child Empathy were persistently positively correlated, Parent Empathy did not appear to directly play a role Child Aggressive Behaviour. However, given its association with Child Empathy, it was possible that Parent Empathy played a role indirectly via its relationship with Child Empathy. Further analyses could help clarify this (see Chapter Eight).

CHAPTER EIGHT.
POST-HOC ANALYSES FOR STUDY 1

Findings from both Studies 1 and 2 left some questions unanswered. These questions pertained to the role of Child Empathy, SES, and Parent Empathy in predicting Aggressive Behaviour. Structural equation modelling (path analysis) was utilized to gain some insight into these questions. Unfortunately, given sample size requirements, this technique was only utilized in the full Study 1 sample (N = 160).

As post-hoc analysis to previous hierarchical multiple regression analyses in Study 1, path analysis was utilized to investigate the sequenced effects[18] of Child Empathy and several associated contextual variables on Child Aggressive Behaviour. The rationale behind this was to (1) further investigate the individual contributions of the child empathy components, (2) investigate the role of parent empathy, and (3) clarify the relationships between the SES indicators and contextual variables. Differences across gender were also of interest. Path analysis was considered appropriate as it enables the specification and testing of the theoretical (conceptual) model that clarifies sequenced direct and indirect effects. A conceptual model was specified and tested (see Figure 6, re-presented below). At the outset the Parent Empathy components and Child Empathy components were grouped[19], respectively. Once a final model was specified and tested, these two empathy variables were deconstructed into their constituent components and a second set of path analyses conducted. Following this, the analysis considered the specification and testing of the finalised model differentiated by Gender.

Path Analyses: Study 1 Post-Hoc Analyses

Conceptual Model

A sequenced conceptual model was posited, based largely on the literature review as well as the bivariate and regression analyses undertaken (see Figure 6, re-presented below). In the model, Child Aggressive Behaviour was posited as the lattermost outcome of Child

[18] As with the word *predictor*, this word should not be interpreted to imply causality; it is simply the technical term employed when discussing path analysis (Kline, 2011). In the context of path analyses, words such as *effect*, *contribute*, and also *impact* and *determine* (or any form of these words) should be interpreted to imply correlation in all instances of their use.

[19] Composite scores were used for Parent Empathy and Child Empathy. Parent Empathy was comprised of equal weighting of the parent self-report measures of Affective Empathy, Cognitive Empathy, and Affect Regulation. Child Empathy was comprised of equal weighting of the parent-report of child measures of child Affective Empathy, Cognitive Empathy, and Affect Regulation.

Empathy and a number of other variables contributing directly and indirectly to Child Empathy. This provided the starting point for the path analysis model testing. While my primary interest was the relationship between Child Empathy and Child Aggression, theory and previous findings suggested that a number of variables may indirectly impact Child Aggressive Behaviour through their associations with Child Empathy. In particular, Parent Empathy was considered an important contributor to Child Empathy.

The conceptual model was structured in four parts. First, since SES is known to be associated with variables at all levels of the child's ecosystem, it was logical to start with SES as the exogenous variable set (exogenous variables in a path analysis are variables which do not require explanation from within the model and are accepted as given). Socioeconomic indicators were therefore hypothesized to impact on the child and parent variables, namely Child Intelligence and Parenting Style and Parent Empathy. Despite literature suggesting otherwise, Child Attachment Style was excluded from the modelling as a result of concerns about the reliability of this measure, and also the lack of relationship with other variables of interest as revealed in regression analyses. In keeping with contemporary research, a composite measure for SES was employed in regression analyses. However, the question arose earlier of whether a composite would be better than using a single indicator of SES (Bradley & Corwyn, 2002). For the purposes of the path analysis, the indicators of this composite (i.e., Household Income, Parent Education, and Household Assets) were treated as separate variables. Consequently, in the path analysis model, determination paths were specified between the various individual SES indicators and Child Intelligence, Parent Empathy, and Parenting Style (see Figure 6).

Following from the base of the model, the child and parent variables were hypothesized to impact on Child Empathy. While Child Intelligence was not associated with Child Empathy in bivariate analyses, the literature suggested that this pathway exists. Literature furthermore suggests a potential pathway between Parent Empathy and Child Empathy which can be seen in earlier bivariate analyses. Additionally, while the pathway between Parenting Style and Child Empathy lacks empirical support, there is reason to suspect a relationship (e.g., see Schaffer et al., 2009; Soenens et al., 2007; Strayer & Roberts, 2004). These three paths were thus specified in the model. In addition to this, while a pathway between Parent Empathy and Parenting Style makes logical sense in that one's psychological characteristics (e.g., Parent Empathy) would impact on one's behaviour (e.g., Parenting Style), this relationship lacks empirical investigation. This path was therefore not specified in the model.

Finally, Child Empathy was hypothesized to impact on Child Aggressive Behaviour. Aside from this, the well-established pathway between Parenting Style and Child Aggressive Behaviour was specified, and as Child Intelligence and Parent Empathy were not expected to directly impact on Child Aggressive Behaviour, the relevant paths were not specified. As a result, Figure 6 below depicts a recursive path analysis model explaining Child Aggressive Behaviour as a direct and indirect function of Child Empathy and several contextual variables. The model was applied to the data utilising a sample of 160 young adolescents living in the Western Cape of South Africa.

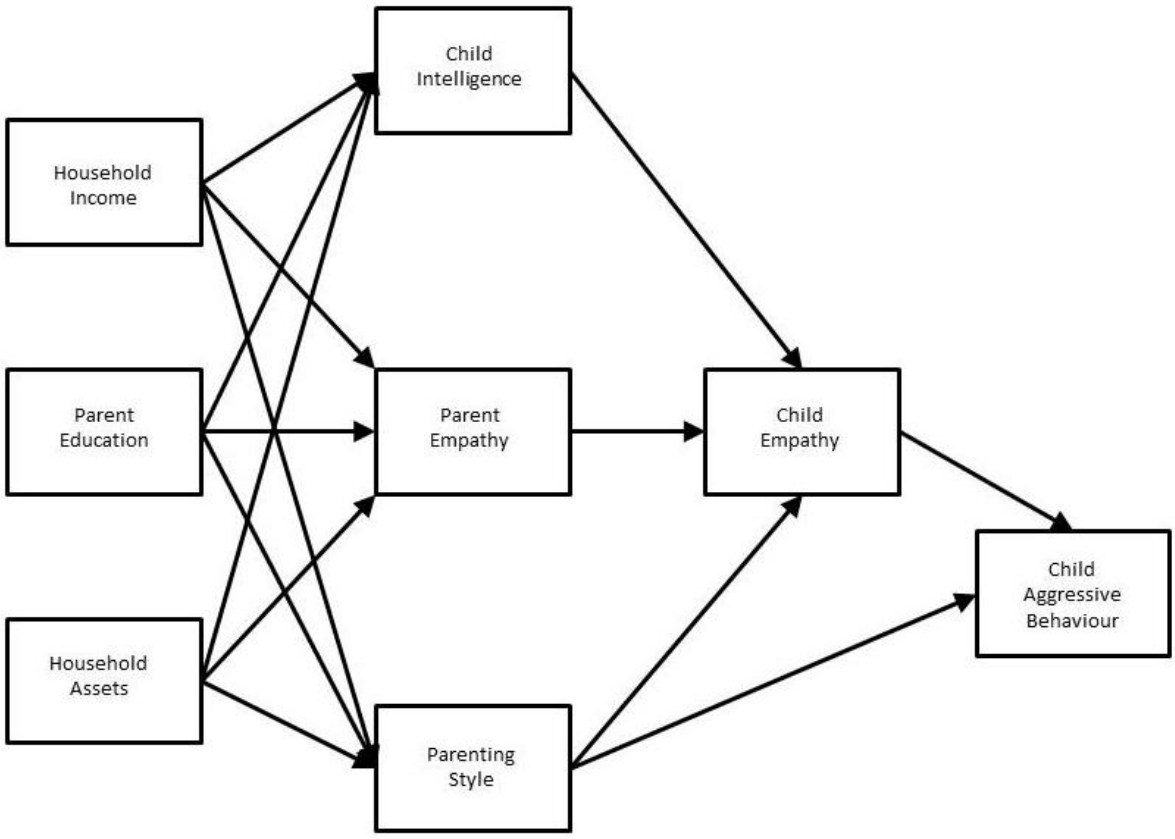

Figure 6. Graphical overview (path diagram) of the conceptual model.

Path analysis. Path analysis was performed to test the conceptual model in Figure 6. Four fit indices were employed to assess the adequacy of the tested models (optimal index values indicated in parenthesis): the $\chi 2/df$ ratio (a ratio between 2-4 indicates a good fitting model and < 2 indicates an excellent model; Kline, 2011); the comparative fit index (CFI; a CFI $\geq$ 0.90 indicates a good fit and a CFI $\geq$ 0.95 indicates an excellent model; Hu & Bentler, 1999), the Root Mean Square Error of Approximation (RMSEA; a RMSEA of 0.08 or less

signifies a good fit while a RMSEA of 0.05 or less indicates an excellent model; Steiger, 1990), and Hoelters critical N index (a value between 200-400 indicates a good model and a value greater than 400 indicates an excellent model). The development of the final model occurred in 4 iterations: Conceptual Model; Model 1; Model 2; and Model 3 (final model). The graphic representation of the conceptual model and the final model are depicted in Figures 9 and 10, respectively. Fit indices for all models are shown in Table 32.

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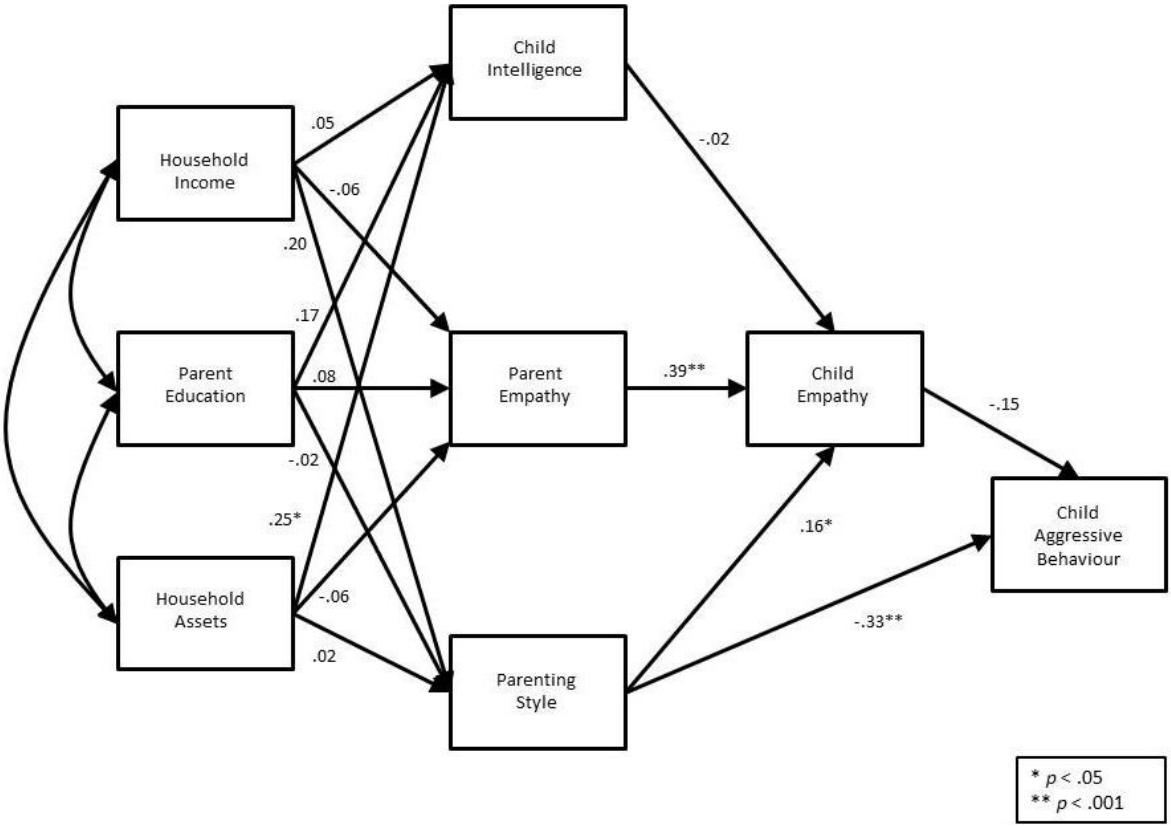

Figure 9. Modelling predictors of externalising aggressive behaviour in young adolescents (Conceptual Model).

Table 32

Fit Indices for the Path Analyses Models Predicting Child Aggressive Behaviour

Model	*χ2*	*df*	*p*	*χ2 / df*	CFI	RMSEA	Hoelter (0.01)
Conceptual Model	28.35	11	.003	2.58	.938	.100	139
Model 1	11.55	10	.317	1.16	.994	.031	320
Model 2	9.31	7	.231	1.33	.991	.046	316
Model 3	6.49	4	.165	1.62	.971	.063	326

Note. $\chi 2$ / *df* = ratio; CFI = comparative fit index; RMSEA = root mean square approximation; Hoelter = critical N (CN) index at 0.01 level.

Conceptual model (base model). Goodness-of fit indices suggested that the conceptual model was a poor fit to the data; while *χ2 / df* was good (2-4), the CFI was only fair (.90-.95), and the RMSEA was poor (> .08 error). Hoelters was poor (< 200), indicating that a sample of 139 (smaller than the current sample size) would be able to disconfirm the model (Hoelter, 1983). Examination of the modification index of the model output using the Lagrange multiplier test (Bentler, 1990) suggested that the model could be significantly improved by adding a path from Parent Empathy to Parenting Style. Since a relationship between Parent Empathy to Parenting Style makes theoretical sense, this path was specified and the model re-estimated. The resulting model was Model 1 (see Figure 16 in Appendix L for a graphical representation of Model 1).

Model 1. Addition of the new path resulted in a significant improvement in the model's fit. Goodness-of-fit indices now suggested that Model 1 was a good fit for the data; χ^2/df was excellent (< 2), CFI was excellent (> .95), RMSEA was excellent (< .05), and Hoelters was good (200-400) (see Table 32). However, not all pathways identified in the model were significant. For one, Child Empathy did not predict Child Intelligence (β = -.02, p =.774). Given the absence of any other relationship of forward determination by Child Intelligence, and hence no pathway of impact to Child Aggressive Behaviour, this variable was deemed to serve no value in the analysis and was subsequently removed from the model. The resulting model, Model 2, was then re-estimated (see Figure 17 in Appendix L for a graphical representation of Model 2).

Model 2. As can be seen in Table 32, goodness-of-fit indices suggested that Structural Equation Model (SEM) Model 2 was also a good fit for the data. Again, not all pathways were significant, and in particular for the various SES indicators. The only significant pathway from the SES factor set was that between Household Income and Parenting Style (β = .22, p = .032). Neither Household Income (β = -.056, p = .613), Parent Education (β = .08,

p = .446) or Household Assets (β = -.06, p = .581) predicted Parent Empathy. Parent Empathy should therefore be considered an exogenous variable. Parent Education (β = .01, p = .898) and Household Assets (β = .04, p = .675) also did not predict Parenting Style. These non-significant pathways were removed, and the resulting and final model, Model 3, was re-estimated (Figure 10).

Model 3. Goodness-of-fit indices suggested that SEM Model 3 was also a good fit for the data; χ^2/df was excellent (< 2), CFI was excellent (> .95), RMSEA was acceptable (.05-.08), and Hoelters was good (200-400). As can be seen in Figure 10, all pathways identified in the SEM were statistically significant, aside from the path between Child Empathy and Child Aggressive Behaviour. Both Household Income (β = .25, p < .001) and Parent Empathy (β = .31, p < .001) were significant in predicting Parenting Style. Child Empathy was predicted by Parent Empathy (β = .39, p < .001) and Parenting Style (β = .16, p = .032). Finally, Child Aggressive Behaviour was significantly predicted by Parenting Style (β = -.33, p < .001), but not by Child Empathy (β = -.56, p = .054). In terms of the rationale for this post-hoc analysis (1) higher Child Empathy was associated with lower Child Aggressive Behaviour (albeit not significantly), (2) higher Parent Empathy was significantly associated with higher Child Empathy, and (3) the only indicator of SES significantly associated with any of the variables was Household Income, where higher Household Income was associated with more adaptive Parenting Style.

This third model was accepted as the 'final model' despite models 1 and 2 having better fit indices. This decision was made as (1) the final model upholds the rule of parsimony through the removal of variables and paths which served no explanatory purpose and (2) the reduced model makes theoretical sense. Despite apparently good fit indices, models 1 and 2 lack parsimony. They can be considered inefficient as fewer pathways may provide the same result (Hooper, Coughlan, & Mullen, 2008). A good model should not retain non-significant pathways.

Finally, to test if the final model (Model 3) was significantly different from the initial Conceptual model, the Chi-Square Difference Test was employed ($\chi^2\Delta$ = 28.35 – 6.49 = 21.86; $df\,\Delta$ = 11 – 4 = 7): $\chi^2\Delta\,(7) = 21.86$, p < .010. This confirmed that the final model was not only parsimonious but significantly improved on the base conceptual model.

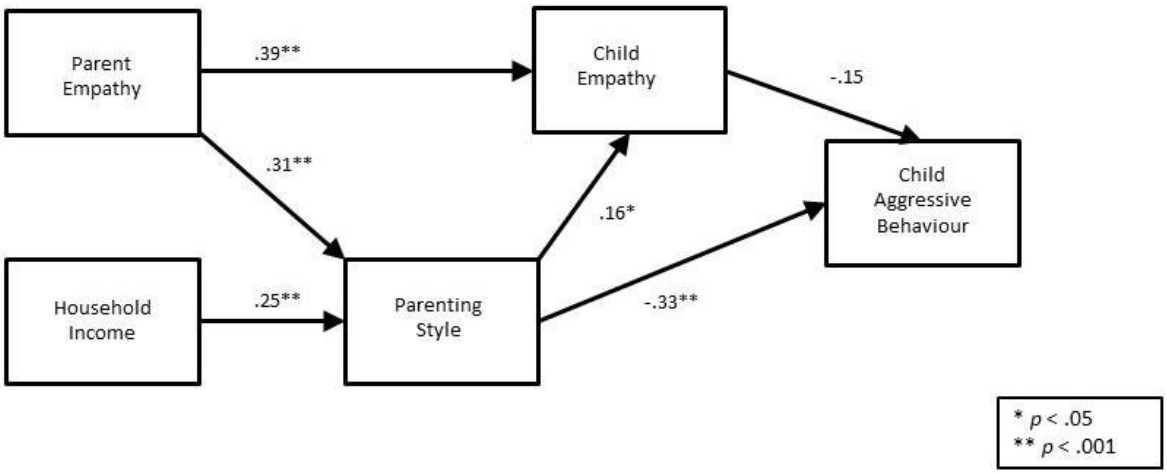

Figure 10. Modelling predictors of externalising aggressive behaviour in young adolescents (Final Model).

Conceptual Model 2: Deconstructing Empathy

A second path analysis was conducted to investigate the differential effects of the Parent and Child Empathy variables as disaggregated into their constituent components (i.e., Affective, Cognitive, and Affect Regulation components, as conceptualised in this dissertation). The literature indicated that the components of empathy may likely differentially predict Aggressive Behaviour. This round of path analysis was therefore utilized to test the new conceptual model (i.e., the final model from the previous path analysis with Parent and Child Empathy deconstructed into their components; see Figure 7, re-presented below). As literature has been inconsistent and lacking, I based the paths between Parent and Child Empathy components on bivariate analyses conducted in Study 1 (both Phase 1 and Phase 2). A simple set of paths between each Child Empathy component and its Parent Empathy counterpart was therefore posited to begin with. Furthermore, while previous path analyses indicated relationships between Parent Empathy and Parenting Style and Parenting Style and Child Empathy, these relationships lack empirical support. As a result, a restrictive model without these pathways was posited to begin with, and subsequent refinements of the model were made as informed by the data. The development of the final model occurred in 2 iterations: Conceptual Model; and Model 1 (final model). Fit indices for all models are shown in Table 33. The graphic representation of the conceptual model and the final model are depicted in Figures 11 and 12.

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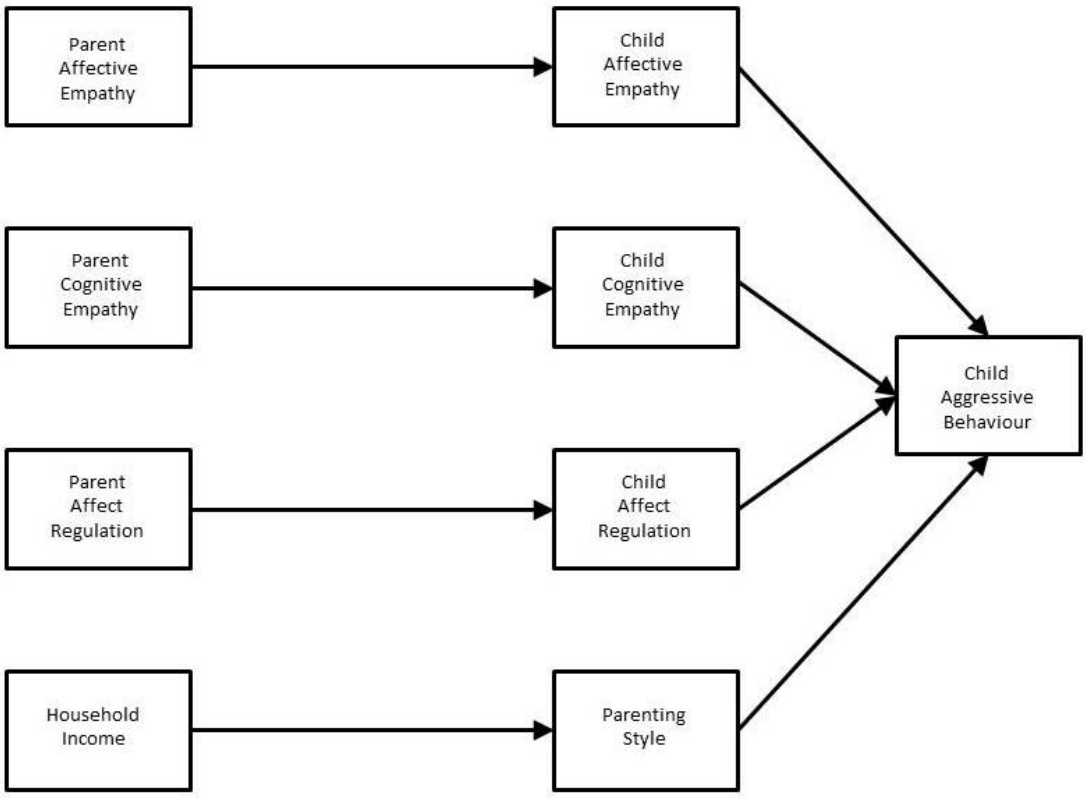

Figure 7. Graphical overview (path diagram) of the conceptual model with empathy deconstructed into its components.

Table 33
Fit Indices for the Path Analyses Models Predicting Child Aggressive Behaviour (Deconstructed Empathy)

Model	*χ2*	*df*	*p*	*χ2 / df*	CFI	RMSEA	Hoelter (0.01)
Conceptual Model 1	54.44	22	< .001	2.48	.850	.096	118
Conceptual Model 2[a]	55.08	24	< .001	2.30	.857	.090	125
Model 1	31.25	22	.091	1.42	.957	.051	205

Note. χ2 / df = ratio; CFI = comparative fit index; RMSEA = root mean square approximation; Hoelter = critical N (CN) index at 0.01 level.
[a] Two non-significant covariances from Conceptual Model 1 removed.

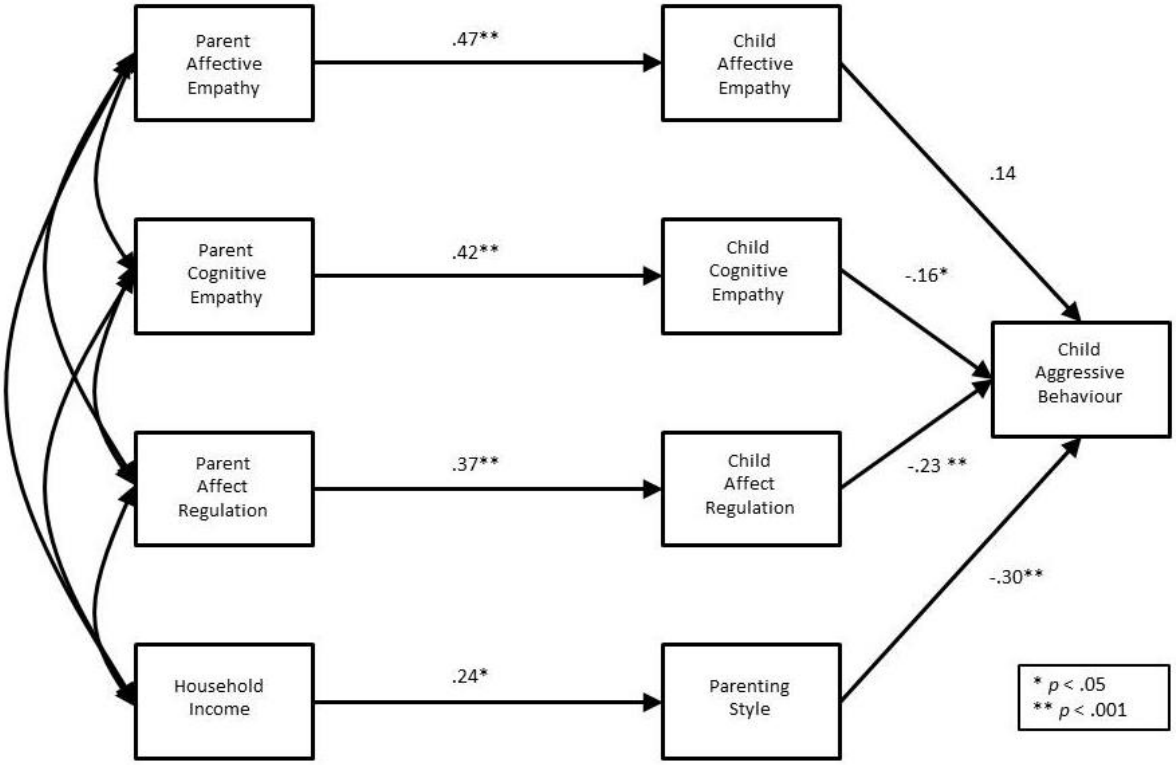

Figure 11. Modelling predictors of externalising aggressive behaviour in young adolescents with empathy deconstructed into its components (Conceptual Model).

Conceptual model (base model for deconstructed empathy). Goodness-of fit indices of the new conceptual model (i.e., empathy deconstructed) suggested that this model was a poor fit to the data; while $\chi 2 / df$ was good (2-4), CFI was poor (< .90), RMSEA was poor (> .08), and Hoelters was poor (< 200). Analyses indicated that two exogeneous variable covariances were not statistically significant and that their inclusion did not materially impact the model. The conceptual model was therefore modified by removing these two covariances and the model was subsequently re-estimated for a more accurate estimate of fit (see Conceptual Model fit indices in Table 33). As expected, the resulting indices still suggested that the conceptual model was a poor fit to the data; while $\chi 2 / df$ was good (2-4), CFI was poor (< .90), RMSEA was poor (> .08), and Hoelters was poor (< 200).

Examination of the modification indices of the model output using the Lagrange multiplier test (for adding pathways) suggested that the model could be significantly improved by (1) adding a path from Parent Cognitive Empathy to Parenting Style, and (2) adding a path from Parent Affect Regulation to Parenting Style. While empirical investigation for these paths is lacking, a general relationship between Parent Empathy to Parenting Style does make theoretical sense. Accordingly, these paths were specified and the resulting final model (Model 1) tested (Figure 12).

Model 1. Addition of the two new paths resulted in a significant improvement in model fit. As can be seen in Table 33, goodness-of-fit indices now suggested that Model 1 was a very good fit for the data; $\chi 2 / df$ was excellent (< 2), CFI was excellent (>.95), RMSEA was acceptable (.05-.08), and Hoelters was good (200-400). All pathways identified were statistically significant at the $p = .050$ level except the path between Child Affective Empathy and Child Aggression ($\beta = .14$, $p = .056$). In terms of empathy deconstruction, Parent Affective Empathy positively predicted Child Affective Empathy ($\beta = .47$, $p < .001$), Parent Cognitive Empathy positively predicted Child Cognitive Empathy ($\beta = .42$, $p < .001$) and Parent Affect Regulation positively predicted Child Affect Regulation ($\beta = .37$, $p < .001$). Furthermore, Child Aggressive Behaviour was significantly predicted by Child Cognitive Empathy ($\beta = -.16$, $p = .023$) and Child Affect Regulation ($\beta = -.23$, $p = .001$). Child Affect Regulation was the strongest predictor ($\beta = -.23$) followed by Child Cognitive Empathy ($\beta = -.16$).

To test if the final model (Model 1) was significantly different from the Conceptual Model (i.e., with non-significant covariances removed), the Chi-Square Difference Test was employed ($\chi^2 \Delta = 55.08 – 31.25 = 23.83$; $df \Delta = 24 – 22 = 2$): $\chi^2 \Delta (2) = 23.83$, $p < .010$. Although less parsimonious, Model 1 (i.e., the more general model) was significantly better at explaining Child Aggressive Behaviour than the Conceptual Model (i.e., the restricted model). Model 1 was therefore accepted as the final model.

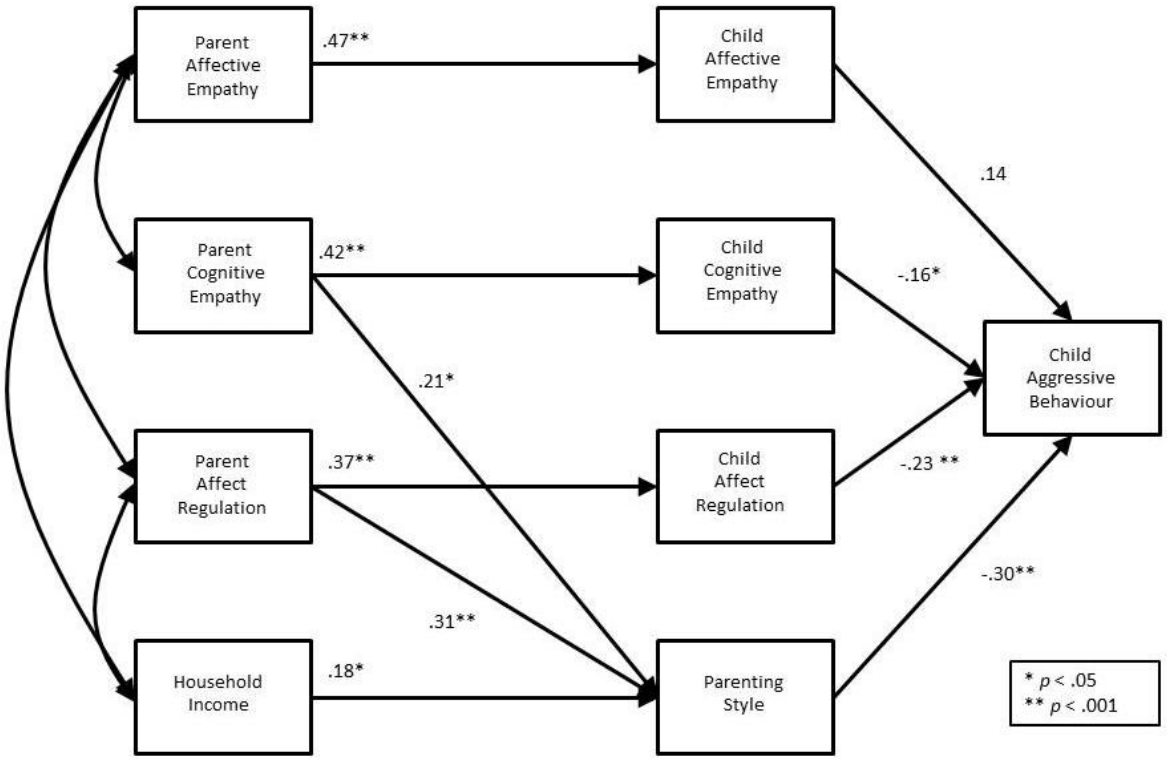

Figure 12. Modelling predictors of externalising aggressive behaviour in young adolescents (Final Model with deconstructed empathy).

Testing the Final Model in Gender Subgroups

Based on theory, Gender is expected to impact on several of the key variables in the final model, including Child Empathy components and Child Aggressive Behaviour. Investigating the differences across Gender would therefore have been ideal. However, while multivariate normality was upheld in the overall sample (N = 160), the case was not so for the smaller gender-differentiated sub-samples. This is unsurprising given that each sub-sample comprised only 80 cases, which translates into a variable/cases ratio of 1:9, below the acceptable threshold for multivariate analysis (i.e., rule of thumb: 10 cases of data for each predictor in the model; Field, 2009). Consequently, it was deemed inappropriate to undertake the path analysis models as the results thereof would be subject to considerable doubt.

To address the three questions posed: (1) Path analyses indicated that at least two components of empathy played a significant role in predicting Aggressive Behaviour in young adolescents, and that Affect Regulation is the strongest predictor followed by Cognitive Empathy. Moreover, it suggests that while Affect Regulation and Cognitive Empathy are negatively associated with Aggressive Behaviour, Affective Empathy is positively associated with Aggressive Behaviour (albeit not significantly). (2) Path analyses

indicated that Parent Empathy does play a role in Child Aggressive Behaviour via its contributions to Child Empathy. (3) Path analyses indicated that it is more useful to investigate the individual associations of SES indicators instead of a composite measure. Additionally, these post-hoc analyses highlighted the contribution of Parenting Style.

CHAPTER NINE.
DISCUSSION

The escalation of aggressive and violent acts in South African schools draws attention to the importance of investigating the factors that are associated with such behaviour. In the Western Cape of South Africa, these acts have been tied to increased levels of gangsterism, particularly in coloured as well as poorer communities. This dissertation therefore investigated the correlates of aggressive behaviour in typically developing children (aged 6-8 years) and young adolescents (aged 11-13 years) living in three coloured communities in the Western Cape, each associated with a different socioeconomic bracket. The overarching goal was to investigate correlates of aggressive behaviour in these children and young adolescents, with the aim of highlighting the role of empathy, as well as drawing attention to the role of other contextual factors such as SES in this context.

A contextual approach was adopted to investigate the correlates of aggressive behaviour. To clarify, two studies were conducted to concurrently investigate the role of empathy and several potential contextual correlates of aggressive behaviour – including SES – in young adolescents (Study 1) and children (Study 2). While the primary focus of these two studies was to highlight the role of empathy, a qualitative comparison of Study 1 and Study 2 findings provided some insight into differences across age bands. A contextual approach allowed for the investigation of the relationships between other contextual variables and aggressive behaviour, within and across age bands. This investigation of the correlates of aggressive behaviour, and more of its kind, is necessary to strengthen the South African knowledge base and subsequently inform intervention in the South African context.

With the overarching goal in mind, a brief overview of Study 1 and Study 2 results is presented first. I then discuss the correlates of Aggressive Behaviour in young adolescents (11-13 years) and children (6-8 years), starting with the role of Child Empathy; the role of Child Empathy and differences across age bands in this role are further discussed bearing in mind the nature of empathy. Next I discuss the role of other contextual factors, paying special attention to that of SES. It is at this point that a word on the theoretical and methodological improvements on previous studies is warranted. Finally, I conclude with a discussion of the limitations of this research, and recommendations for future research.

Summary and Implications of Findings

Overview of Results

The best model of Aggressive Behaviour in young adolescents in Phase 1 of Study 1 also significantly predicted Aggressive Behaviour in Phase 2 of Study 1, with a small to medium amount of variance explained in each instance. Model building analyses (hierarchical multiple regression analyses) in Phase 1 indicated that Gender, SES, Parenting Style, Child Affect Regulation (parent-report measure), and the interaction between SES and Parenting Style significantly predicted Aggressive Behaviour, and that together these variables explained 27% (*Adjusted* R^2) of the variance in Aggressive Behaviour in this young adolescent sample (see p. 120). The overall model was then replicated to some extent in the Phase 2 sample, a sample which was demographically equivalent to the Phase 1 sample. Here this inclusive model was also significant and explained 21% (*Adjusted* R^2) of the variance seen in Aggressive Behaviour (p. 132). While differences in individual predictors were evident across phases, the consistent fit and explanatory power of this 'best model' identified in Phase 1 of Study 1 is valuable (and rare), providing some confidence in findings. In contrast, in a child sample demographically equivalent to Study 1 participants aside from age, of the measures used only Parenting Style significantly predicted Aggressive Behaviour, explaining 16% (*Adjusted* r^2) of the variance in Aggressive Behaviour in this sample (p. 154).

In brief, findings indicated that a model including Gender, SES, Parenting Style, Child Affect Regulation, and the interaction between SES and Parenting Style predicted Aggressive Behaviour in typically developing coloured young adolescents (11-13 years) and that a model including only Parenting Style predicted Aggressive Behaviour in children (6-8 years) living in the Western Cape of South Africa. Gender, Parenting Style, and Child Affect Regulation were consistently negatively associated with Aggressive Behaviour across both phases of Study 1. In other words, in young adolescents (11-13 years), males exhibited more Aggressive Behaviour, and negative Parenting Style and poorer affect regulation were both associated with increased Aggressive Behaviour. Unexpectedly, the direction of the relationship between SES and Aggressive Behaviour differed across phases; SES was negatively associated with Aggressive Behaviour in Phase 1 of Study 1, but positively associated in Phase 2 of Study 1. In Study 2, Parenting Style was negatively associated with Aggressive Behaviour indicating that negative Parenting Style was associated with increased Aggressive Behaviour in children (6-8 years). As can be seen, some inconsistencies were evident within and across age bands.

While the overall model was significant across the two phases of Study 1, the contributions of the respective predictors (in terms of significant explanation) differed across samples – at times these contributions differed markedly. To illustrate, in Phase 1 of Study 1, all variables included in the model significantly contributed to the variance in Aggressive Behaviour; Gender added 5% explanation, SES 6%, Parenting Style 4%, Child Affect Regulation 7%, and the interaction between SES and parenting Style a further 5% of explanation (see Table 12, p. 120). In Phase 2 of Study 2, simultaneous regression analysis suggested that of the measures taken only Parenting Style and Child Affect Regulation were contributing significantly to variance in Aggressive Behaviour (see Table 21, p. 133). Finally, in Study 2, only Parenting Style contributed significantly to Aggressive Behaviour, explaining 16% of the variance in Aggressive Behaviour (see p. 154). Differences were thus apparent.

Post-hoc analyses in the form of path analyses were conducted with the total Study 1 sample (N =160) as some questions remained unanswered subsequent to Study 1 analyses. Specifically, clarification of the individual contributions of the Child Empathy components to Aggressive Behaviour, the role of Parent Empathy in predicting Aggressive Behaviour, and the relationship between SES indicators and contextual variables was warranted. Briefly, path analysis indicated that Child Cognitive Empathy and Child Affect Regulation (both parent-report measures) were significantly negatively associated with Aggressive Behaviour. Furthermore, Parent Empathy did indeed contribute to Aggressive Behaviour via its positive association with Child Empathy. Analyses also suggested that only Household Income (i.e., one indicator of SES) may be responsible for the previous associations (in hierarchical regression analyses) between SES and Aggressive Behaviour; Household Income contributed to Aggressive Behaviour via its positive association with Parenting Style. Additional analyses in the form of path analyses therefore yielded valuable further insights into the correlates of Aggressive Behaviour in children and young adolescents. A more detailed discussion of Study 1 and Study 2 results, respectively, are discussed next.

Study 1: Investigating correlates of aggressive behaviour in young adolescents. Findings consistently indicated that Child Affect Regulation (parent-report) and Parenting Style were associated with Aggressive Behaviour in typically developing coloured young adolescents living in the Western Cape of South Africa (11-13 years; regression analyses and path analyses). Hierarchical regression analyses yielded a consistent negative relationship between Child Affect Regulation and Aggressive Behaviour across phases, as well as a consistent negative relationship between Parenting Style and Aggressive Behaviour across

phases. This was echoed in path analyses, where Child Affect Regulation and Parenting Style were both directly associated with Aggressive Behaviour. The relationship between SES and Aggressive Behaviour was, however, less clear; hierarchical regression analyses yielded a negative relationship in the Phase 1 sample and a positive relationship in the Phase 2 sample. SES was furthermore implicated in its interaction with Parenting Style in Phase 1. Post-hoc path analyses then indicated that only Household Income (one indicator of SES) played a role in Aggressive Behaviour, and did so indirectly via its association with Parenting Style.

Importantly, as mentioned earlier, path analyses were conducted in an attempt to clarify (1) the differential effects of the Child Empathy components on Aggressive Behaviour, (2) the relationship between Parent Empathy and Aggressive Behaviour, and (3) the relationship between SES indicators and Aggressive Behaviour. Firstly, analyses indicated that both Child Cognitive Empathy (parent-report) and Child Affect Regulation (parent-report) were directly related to Aggressive Behaviour, and that the relationship between Child Affective Empathy (parent-report) may also be important to consider (the hypothesized positive association was there, but did not reach significance). Next, Parent Empathy components were also consistently positively associated with their respective Child Empathy components (as seen in bi-variate analyses), thereby indicating that Parent Empathy was important to consider given its indirect association with Aggressive Behaviour via Child Empathy. Finally, only Household Income (one indicator of SES) contributed to Aggressive Behaviour, and did so indirectly via its association with Parenting Style.

In sum, hierarchical regression analyses indicated that poorer affect regulation and more negative parenting were both associated with increased Aggressive Behaviour in young adolescents, and provided mixed findings regarding the role of SES. Post-hoc path analyses then further indicated that reduced Child Cognitive Empathy and poorer Affect Regulation were both associated with increased Aggressive Behaviour, that Parent Empathy contributes to Aggressive Behaviour via its positive relationship with Child Empathy, and that low Household Income acts as risk factor for negative parenting, which in turn increases the likelihood of Aggressive Behaviour. Overall then, findings indicated that individual context (i.e., Child Empathy components) as well as external context (i.e., Parent Empathy, Parenting Style, and SES) play a role in Aggressive Behaviour in young adolescents.

Study 2: Investigating correlates of aggressive behaviour in children. In typically developing coloured children living in the Western Cape of South Africa (aged 6-8 years), findings indicated that of the measures used only Parenting Style was associated with Aggressive Behaviour. More negative parenting was associated with increased Aggressive

Behaviour in children. In this younger sample only an external context variable (i.e., Parenting Style) played a role in Aggressive Behaviour in children; Child Empathy (i.e., components thereof) did not.

Correlates of Aggressive Behaviour in Children and Young Adolescents

To identify the correlates of aggressive behaviour requires that one take into account that behaviour is embedded in context. Specifically, child development occurs in an ecosystem of contexts (Bronfenbrenner, 1979). Behaviour arises from the complex interaction between risk and protective factors situated within these contexts across time. The protective and risk factors are furthermore situated within the individual (i.e., internal factors) as well as outside of the individual (i.e., external factors). Behaviour is therefore multiply-determined. My research findings were a case in point: Several factors situated within various levels of the individual's ecosystem of contexts, both internal and external to the individual, were identified as correlates of aggressive behaviour. Furthermore, the correlates identified also differed across age bands. Aggressive behaviour was therefore associated with multiple contextual factors situated within an ecosystem of contexts in children as well as in young adolescents living in the Western Cape of South Africa.

The overarching goal of this research was to investigate the relationship between empathy and aggressive behaviour, while acknowledging the role of context. Numerous studies undertaken outside of South Africa have identified empathy as an important construct in explanations of aggressive behaviour (Dadds et al., 2008; Jolliffe & Farrington, 2004, 2007: Miller & Eisenberg, 1988; van Langen et al., 2014). Given the context-specificity of behaviour, however, the relationship between empathy and aggressive behaviour in South Africa requires further investigation (Malcolm-Smith et al., 2015; Pinnock, 2016; Ward et al., 2015). This relationship will likely become clearer when taking context into account. Specifically, given the widespread poverty, unemployment, and social inequality in South Africa (Seedat et al., 2009), SES should be considered an important contextual factor to include in investigations. Consequently, the role of empathy became clearer by concurrently investigating the relationships between several contextual factors, including SES, and aggressive behaviour.

The relationship between Child Empathy and Aggressive Behaviour. ***Was Child Empathy associated with Aggressive Behaviour in young adolescents?*** I investigated whether empathy, conceptualised as comprising an Affective, a Cognitive, and an Affect Regulation component, was associated with Aggressive Behaviour in young adolescents (i.e.,

aged 11-13 years). To begin with, two measures of each of the three empathy components were employed to measure Child Empathy (i.e., one child task measure and one parent-report measure). For reasons outlined in the rationale, I hypothesized that reduced Cognitive Empathy would likely be associated with increased Aggressive Behaviour in young adolescents, while *increased* Affective Empathy would likely be associated with increased Aggressive Behaviour. Finally, I hypothesized that poorer Affect Regulation would be associated with increased Aggressive Behaviour, and that Affect Regulation would be more strongly associated with Aggressive Behaviour than Affective and Cognitive Empathy, respectively.

In keeping with several of my hypotheses, components of Child Empathy were associated with Aggressive Behaviour in young adolescents. However, while the role of both child and parent-report measures of Child Empathy components were investigated, of these measures only the parent-report measures were associated with Aggressive Behaviour. In keeping with Malcolm-Smith and colleagues' (2015) findings, child task measures of Child Empathy were not associated with Aggressive Behaviour. In other words, those measures where data concerning Child Empathy came from a source other than the child (in this case parent-report) were significantly associated with Aggressive Behaviour. These included a measure of dispositional Affective Empathy (parent-report of child Affective Empathy), dispositional Cognitive Empathy (parent-report of child Cognitive Empathy), and affect regulation (parent-report of child Affect Regulation). The child task measures (i.e., Empathy for Pain task, ToM battery, and Snap Game, respectively) did not do so. These findings also echo previous reviews and meta-analyses of international literature which have shown (1) that the mode of assessment (i.e., measurement instrument/tool) moderates the relationship between empathy and aggressive behaviour (Joliffe & Farington, 2004; Miller & Eisenberg, 1988; van Langen et al. 2014), and (2) that convergence between different formats of measurements in the psychometrics of empathy is rare (Lovett & Sheffield, 2007; Strayer & Roberts, 2004). Nevertheless, Child Empathy was associated with Aggressive Behaviour in some instances, as expected.

Specifically, while Affective Empathy was not significantly correlated with Aggressive Behaviour, path analyses suggested that Cognitive Empathy played a role, and identified Affect Regulation as an important correlate Aggressive Behaviour. As hypothesized, reduced Cognitive Empathy was associated with increased Aggressive Behaviour in young adolescents. This was in keeping with Dadds and colleagues (2008) findings. Furthermore, in keeping with previous findings, poorer affect regulation was

associated with increased Aggressive Behaviour in young adolescents (Bozicivic et al., 2016; Frick & Morris, 2004; Izard et al., 2008; Mullin & Hinshaw, 2007; Penney & Moretti, 2010). In other words, an increased ability to know another's feelings on a cognitive level (i.e., understand another's feelings) as well as better affect regulation translated into a decreased likelihood of Aggressive Behaviour in typically developing young adolescents living in the Western Cape of South Africa.

The relationship between Affective Empathy and Aggressive Behaviour should not, however, be discounted. While Affective Empathy was not significantly associated with Aggressive Behaviour in regression analyses, post-hoc path analyses drew attention to a possible positive association between Affective Empathy and Aggressive Behaviour, as hypothesized. While this relationship was not significant, it yielded a β value similar in magnitude to that of Cognitive Empathy (which was significant), thus suggesting that this relationship was important to consider. Additionally, a strength of path analysis (i.e., the post-hoc technique employed) is that it investigated the simultaneous effects of several potential correlates of Aggressive Behaviour; hierarchical regression analyses (i.e., the initial technique employed), in contrast, assumes that several factors combine additively, and do not necessarily interact with each other. An argument can therefore be made that path analysis more accurately reflected the value of considering Affective Empathy as a correlate of Aggressive Behaviour than hierarchical regression analyses, which indicated that it had no explanatory value. Together, these findings suggested that increased Affective Empathy may be associated with increased Aggressive Behaviour. This finding too echoes Dadds and colleagues' findings. Interestingly, Dadds and colleagues (2008) found a positive association between Affective Empathy and behavioural problems, but only in girls. While a positive association between empathy (i.e., Affective Empathy) and Aggressive Behaviour may seem counter-intuitive, it can be explained by the conceptualisation of empathy employed in this dissertation (to be discussed at a later stage).

Finally, as hypothesized, of the three empathy components, Affect Regulation was most strongly associated with Aggressive Behaviour in young adolescents. Poorer affect regulation was consistently significantly associated with increased Aggressive Behaviour (hierarchical regression analyses in Phases 1 and 2, and path analyses).Cognitive Empathy was also implicated, but only in path analyses; Reduced Cognitive Empathy was significantly associated with increased Aggressive Behaviour. Findings furthermore suggested that Affect Regulation explained more variance in Aggressive Behaviour than both other components of empathy. For one, of the empathy components Affect Regulation was the only significant

predictor in both phases of Study 1. Additionally, β values in post-hoc analyses further supported this hypothesis. As behaviour is something that needs to be regulated (Decety, 2011), this was not surprising. Regulatory processes may not specific to empathy, but the processes involved in regulating one's affective states are very relevant to empathy. To illustrate, if I see someone being bullied and consequently become angry but does not down-regulate this anger, this anger may result in a greater likelihood of my aggressive behaviour towards the bully. In other words, the regulation of affect can therefore be considered more important in explaining Aggressive Behaviour in typically developing young adolescents than the processes that generated those affective states.

Was Child Empathy associated with Aggressive Behaviour in young children? I investigated whether empathy (i.e., Affective, Cognitive, and Regulation) was associated with Aggressive Behaviour in children (aged 6-8 years). To begin with, two measures of Affective Empathy as well as two measures of Cognitive Empathy (i.e., one child task and one parent-report measure in both instances) and one measure of Affect Regulation (i.e., parent-report measure) were employed to measure Child Empathy. The child task measure of Affect Regulation was not completed by children as instructions were too complicated for the majority of these children to follow. Drawing on the limited literature available for child samples, but relying largely on findings from adolescent samples, I hypothesized that reduced Cognitive Empathy would likely be associated with increased Aggressive Behaviour in this child sample, while increased Affective Empathy would likely be associated with increased Aggressive Behaviour. In terms of Affect Regulation, I hypothesized that poorer affect regulation would be associated with increased Aggressive Behaviour, and that Affect Regulation would be more strongly associated with Aggressive Behaviour than Affective and Cognitive Empathy, respectively. Finally, as empathy has more consistently been associated with aggressive behaviour in adolescents than in children, I expected that the hypothesized relationships between Affective and Cognitive Empathy and Aggressive Behaviour were less likely to materialise in children than in young adolescents.

Contrary to my hypotheses, Child Empathy was not associated with Aggressive Behaviour in children; none of the Child Empathy components were significantly associated with Aggressive Behaviour (neither child tasks nor parent-report measures) in this sample. In terms of Affective and Cognitive Empathy, findings did not reflect the previously reported negative association between Cognitive Empathy and behavioural problems in both girls and boys, and also not the positive association between Affective Empathy and behavioural problems (albeit only in girls; Dadds et al., 2008). These differences could have resulted for a

number of reasons. For one, restricted range (i.e., too little variability) of scores from these typically developing samples could be responsible for this finding. Hypotheses did, however, rely on the available literature. Unfortunately, the literature concerning the relationship between empathy and aggressive behaviour in typically developing children is very limited and, when investigated, has yielded inconsistent findings. Consequently, the hypotheses made in this research relied very heavily on findings from adolescent samples, of which many investigated the relationship between empathy and aggressive behaviour in non-typically developing samples (e.g., incarcerated, delinquent, conduct disordered samples; see Joliffe & Farrington, 2004, 2007; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; van Langen et al., 2014, for reviews). This is problematic given that the underlying mechanisms facilitating aggressive behaviour are likely to differ in typically developing and non-typically developing samples. It follows that the role of empathy could differ across these samples. Additionally, empathy has predominantly been defined in affective terms, which has left us with very little evidence of the relationship between Cognitive Empathy and aggressive behaviour. Findings contrary to expectations were therefore not too surprising.

Additionally, this research investigated the role of empathy while concurrently taking into account the role of other contextual factors. This methodological approach is a major strength of this research. Numerous studies have reported the relationship between empathy and aggressive behaviour without considering the role of other factors (Joliffe & Farrington, 2004), or consider very few other factors. This is problematic as behaviour is embedded in context. The role of empathy (and any other factor for that matter) is likely to become clearer once the role of context (i.e., contextual factors) is concurrently taken into account. It is likely that findings to date (which have informed my research hypotheses) have been undermined by the omission of investigating the role of context. This dissertation therefore improved on the approach taken by previous studies. An argument can be made that, in doing so, it yielded more accurate or ecologically valid findings regarding the relationship between empathy and aggressive behaviour. Overall, findings suggested that neither the ability to feel another's feelings on a visceral level (i.e., resonate with another's feelings) nor the ability to know another's feelings on a cognitive level (i.e., understand another's feelings) were associated with Aggressive Behaviour in typically developing children living in the Western Cape of South Africa.

The absence of a relationship between Affect Regulation and Aggressive Behaviour was somewhat unexpected. Firstly, the relationship between affect/emotion regulation and aggressive behaviour has been well-established internationally (Dearing et al, 2002; Izard et

al., 2008; Lewis, Granic, & Lamm, 2006; Mullin & Hinshaw, 2007; Penney & Moretti, 2010; Röll et al., 2012). Secondly, as behaviour is first and foremost something that needs to be regulated, the South African context was not expected to alter the importance of Affect Regulation. I therefore expected poorer affect regulation to be associated with increased Aggressive Behaviour. This was not, however, the case for this sample of typically developing children. Potential explanations are addressed shortly, and are related to (1) the nature of empathy, (2) the nature of the sample, and (3) the measure of Affect Regulation employed in this dissertation.

Overall then, Empathy was significantly associated with Aggressive Behaviour in young adolescents, but not in young children. In young adolescents, Affect Regulation was the strongest correlate of Aggressive Behaviour in that poorer affect regulation was associated with increased Aggressive Behaviour. Next, reduced Cognitive Empathy was associated with increased Aggressive Behaviour. Findings further suggested that increased Affective Empathy may be important to consider as a correlate of increased Aggressive Behaviour. In contrast, none of the components of Child Empathy were associated with Aggressive Behaviour in children. This supports my hypothesis that a relationship between Child Empathy (i.e., components thereof) and Aggressive Behaviour was less likely to be found in children than in adolescents. A qualitative comparison of findings across studies revealed differences in the role of empathy across age bands. These differences can be explained in part by the nature of empathy.

The nature of empathy. Empathy is not a unitary construct and is therefore best not investigated as such. This has been demonstrated in numerous studies, and was illustrated in my findings, for example, in that the empathy components were differentially associated with Aggressive Behaviour in young adolescents. Researchers interested in the relationship between empathy and aggressive behaviour have recently begun to move towards conceptualising empathy in terms of the underlying brain processes in relation to behaviour (Batson, 2009; Decety, 2011). Empathy (i.e., empathy-driven behaviour) is then conceptualised as a product of the interaction between bottom-up brain processes facilitating emotion sharing (Affective Empathy), top-down brain processes facilitating emotion awareness and understanding (Cognitive Empathy), and the likelihood of engaging in a particular behaviour depends on how the affective states generated by Affective Empathy processes are regulated (Affect Regulation) (see Decety, 2011; Decety & Jackson, 2004). In this dissertation I deconstructed empathy into these three components to investigate the relationship between empathy and aggressive behaviour.

The differences in the nature of empathy components can in part explain findings regarding the relationship between Child Empathy and Aggressive Behaviour. To elaborate, the components of empathy are qualitatively different in nature as they are subserved by different neurological substrates (Zaki & Oshner, 2012). Bottom-up (primitive) brain processes give rise to Affective Empathy while top-down (higher-order) brain processes give rise to Cognitive Empathy and Affect Regulation, respectively. Processes giving rise to Affective Empathy (i.e., viscerally resonating with another's feelings) are innate and unconscious responses. The capacity for Affective Empathy is therefore not expected to vary significantly across typically developing children and young adolescents (as demonstrated by Dadds et al., 2008), and should also not be reduced in typically developing individuals. Consequently, as reduced Affective Empathy is not expected, it cannot be associated with Aggressive Behaviour (as demonstrated in this dissertation)[20]. Given the nature of Affective Empathy and the typically developing sample employed, it is not surprising that reduced Affective Empathy was not associated with increased Aggressive Behaviour.

Cognitive Empathy and Affect Regulation, in contrast, are concerned with higher-order brain processes. In terms of Cognitive Empathy, understanding what another is feeling such as the act of adopting another person's perspective is an effortful and controlled process (Decety & Jackson, 2004) and is subject to learning. The capacity for Cognitive Empathy is therefore expected to vary across typically developing children and young adolescents as a function of age (as demonstrated by Dadds and colleagues, 2008). In terms of Affect Regulation, the processes involved in regulation of affective states are also subject to brain maturation and learning, similar to Cognitive Empathy. The capacity for Affect Regulation is therefore also expected to vary across typically developing children and young adolescents. In fact, the ability to self-regulate one's affective states in general changes dramatically across childhood and adolescence, and its role in motivating behaviour and understanding other's emotions and internal cognitions becomes increasingly important (Eisenberg & Eggum, 2009). As a result, Cognitive Empathy and Affect Regulation could be reduced in typically developing individuals, and therefore could play a role in Aggressive Behaviour (as demonstrated in this dissertation). In this way, the nature of empathy components (i.e., bottom-up vs. top-down) begins to shed light on the current findings.

[20] It is worth noting, however, that a large body of literature has demonstrated that deficient (not simply reduced) Affective Empathy has been associated with a particularly severe and violent pattern of aggressive and antisocial behaviour in children which seems to persist into adulthood (Frick et al., 2003, 2005; Frick & White, 2008). These individuals all score high on callous-unemotional traits, which is not expected in a typically developing sample.

Furthermore, recall that post-hoc path analyses suggested that increased Affective Empathy may be associated with increased Aggressive Behaviour in young adolescents. To some this positive association may seem counter-intuitive, as reduced/deficient empathy is generally assumed to be associated with an increased likelihood of aggressive behaviour. However, this association can also be explained by the nature of empathy. To elaborate, empathy is concerned with emotion-sharing while being able to differentiate between the self and other. By extension, Affective Empathy is concerned with processes that allow visceral resonating of another's feeling/affective state. If this resonance is too much, we experience affective over-arousal. This is a state where there is very little self-other differentiation. Consequently, it is less likely that empathy-driven behaviour will follow. This is because affective over-arousal is associated with personal distress (Decety, 2011; Eisenberg, 2000). Essentially, resonating too much with another's feeling state can become overwhelming – so overwhelming that one's focus shifts to one's own feeling state and away from the other's need, thereby decreasing the likelihood of empathy-driven behaviour and increasing the likelihood of acting out (e.g., aggressive behaviour). An argument can therefore be made that Affective Empathy should be positively associated with Aggressive Behaviour in typically developing individuals, especially where poor affect regulation is present.

In addition to this, the nature of empathy can also explain the differences seen in the relationship between Child Empathy and Aggressive Behaviour across age bands. To recap, Affect Regulation, Cognitive Empathy, and to a lesser extent Affective Empathy, were implicated in Aggressive Behaviour in young adolescents, while none of the empathy components were associated with Aggressive Behaviour in children. While the absence of Affective and Cognitive Empathy as correlates in children was not too surprising (as explained earlier), the absence of Affect Regulation as correlate was somewhat unexpected. It can, however, be explained by the fact that children (6-8 year olds in this instance) were still developing self-regulatory skills such as affect regulation, and consequently relied more heavily on external regulators of behaviour (e.g., parents) than internal regulators (e.g., self-regulation processes). Given the dramatic changes in self-regulatory skills across childhood and adolescence (Eisenberg & Eggum, 2009), we expect a shift to increased reliance on internal regulators and decreased reliance on external regulators of behaviour in adolescence. In keeping with this explanation, young adolescents' Aggressive Behaviour was consistently regulated both externally and internally (e.g., Parenting Style and Regulation), while children's Aggressive Behaviour was only significantly regulated externally (by Parenting Style). In fact, of the measures used Parenting Style was the only significant correlate of

Aggressive Behaviour in children and played a larger role in explaining Aggressive Behaviour in children when compared to young adolescents (to be discussed further shortly). In this way, differences across age bands in the relationship between Child Empathy and Aggressive Behaviour can be explained by the top-down/high-order nature of the Affect Regulation component of empathy.

This brings me to one last point regarding the nature of empathy: In general, an assumption is made that empathy is 'good'. This assumption is supported by numerous studies demonstrating a positive association between empathy and prosocial behaviour and a negative association between empathy and aggressive, delinquent, conduct disordered, and antisocial behaviour (see Chapter Two). As a result, labels of 'good' and 'bad' are often assigned to superior and reduced/deficient empathy, respectively. However, the relationship between empathy and aggressive behaviour is not as clear cut as this. For one, Affective Empathy has been both positively and negatively associated with aggressive behaviour. While there is some support for a positive association in typically developing samples and younger samples (Dadds et al., 2008), a negative association has often been illustrated in non-typically developing samples such as delinquent, conduct disordered, and antisocial samples (de Kemp et al., 2007; Joliffe & Farrington, 2004, 2007; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988; van Langen et al., 2014). These findings suggest that Affective Empathy safeguards against extreme aggression and violence while in typically developing samples increased Affective Empathy appears to place one at risk for aggressive behaviour. Given this, I argue that empathy should not be considered as having valence.

To clarify my previous statement, empathy should be considered an internal tool used to analyse a situation, which consequently has the potential to play a role in behaviour in a positive or negative manner. The context (both internal and external to the individual) dictates how empathy contributes to behaviour. For example, as can be seen, the relationship between Affective Empathy and aggressive behaviour depends heavily on the sample under investigation. Similarly, in the case of Cognitive Empathy, both superior Cognitive Empathy as well as reduced/deficient Cognitive Empathy has been associated with increased aggressive behaviour (Sutton et al., 1999; van Langen et al., 2014). The assumption that empathy is 'good' and leads to prosocial behaviour is clearly an over-simplification.

To summarize, behaviour is multiply-determined by internal and external factors situated with the individual's ecosystem of contexts. Empathy is one such factor situated within the individual context; it is a tool that can be drawn on to guide behaviour. The impact of the information gained from this tool, however, depends on how this information is

regulated by numerous factors within the individual's ecosystem of contexts. My findings indicated that empathy is a valuable tool for young adolescents living in the Western Cape of South Africa. Specifically, poorer affect regulation and reduced Cognitive Empathy was significantly associated with increased Aggressive Behaviour in these samples. This suggested that improving affect regulation skills (Affect Regulation) as well as improving cognitive understanding of others' feelings (Cognitive Empathy) would reduce Aggressive Behaviour in these two young adolescent samples. In contrast, empathy components were not associated with Aggressive Behaviour in children. As will be discussed next, other contextual factors played a more important role in Aggressive Behaviour in children.

The relationship between other contextual factors and Aggressive Behaviour in children and young adolescents. I investigated whether several contextual factors known to be associated with empathy and/or aggressive behaviour were associated with Aggressive Behaviour in children and young adolescents. Potential contextual correlates included variables situated within all levels of the child's ecosystem of contexts, namely Gender, Intellectual Functioning, Attention, and Working Memory (Individual Context), Parent Empathy, Parenting Style, and Attachment Style (Everyday Contexts), and SES (Broader Context). Given the scarcity of studies undertaken in South Africa, only two specific hypotheses were made. Firstly, I hypothesized that lower SES would be indirectly associated with increased Aggressive Behaviour. Secondly, I hypothesized that negative Parenting Style would be associated with increased Aggressive Behaviour. Furthermore, as all of the potential correlates had previously been found to be associated with empathy and/or aggressive behaviour in the international context, I expected that at least some of them (aside from SES and Parenting Style) would be significantly associated with Aggressive Behaviour in this South African context. Additionally, given that behaviour is differentially determined across age, differences in correlates across age bands were likely. Given the available literature, I did not make specific predictions regarding these differences. I did, however, expect that younger children's behaviour when compared to young adolescents' behaviour would be more heavily determined by external sources of regulation (i.e., external context factors) than internal sources of regulation (i.e., individual context factors).

Was SES associated with Aggressive Behaviour? First and foremost, the role of SES was not to be overlooked, particularly not in this South African context (Foster, 2012; Ward, 2007a). While the explanatory mechanisms are poorly understood, the negative association between SES and aggressive behaviour has received much support (Ataguba, Akazilia, & McIntyre, 2011; Demosthenous et al., 2002; Fatima & Sheikh, 2014; Letourneau et al., 2011;

Nagin & Tremblay, 2001; Pinnock, 2016; Piotrowska et al., 2015; Seedat et al., 2009; Ward, 2007a; Ward & Cooper, 2012). The widespread poverty, unemployment, and social inequality in South Africa, as well as the association between low SES and gangsterism in the Western Cape, make SES an important factor to take into consideration in this particular South African context. With the highest GINI coefficient in the world in 2016 at .77 (i.e., measure of income inequality with 0 representing a perfectly equal society and 1 a perfectly unequal society), and of the highest rates of crime and violence in the world (Foster, 2012; Krug et al., 2012), the importance of investigating the relationship between SES and aggressive behaviour in South Africa is clear.

To start with, I used a standardized composite as a measure of SES. This composite comprised three indicators of SES, namely Household Income, Mother's highest level of education (HLOE), and Household Assets. I hypothesized that lower SES would be associated with increased Aggressive Behaviour. Furthermore, since SES/indicators of SES have demonstrated multiple indirect relationships with aggressive behaviour, I expected that the relationships between SES and Aggressive Behaviour would be indirect in nature. Informed by previous findings, Intellectual Functioning and Parenting Style were flagged as the two most likely variables to be associated with both SES and Aggressive Behaviour.

As hypothesized, SES was associated with Aggressive Behaviour in young adolescents. As expected, SES was indirectly associated with Aggressive Behaviour. In young adolescents, the interaction between SES and Parenting Style was initially highlighted in hierarchical regression analyses, and path analyses indicated that Household Income (one indicator of SES) was associated with Parenting Style, which in turn was associated with Aggressive Behaviour. In other words, low Household Income was associated with negative parenting style which in turn was associated with increased Aggressive Behaviour. These findings are in keeping with previous international and national studies (Guo & Harris, 2000; McLoyd, 1998; Piotrowska et al., 2015; Ward et al., 2015). Ward and colleagues (2015) explain that a number of stressors such as economic stress, for example, can undermine positive parenting. For one, poverty has been associated with harsh and inconsistent parenting (Elder, Eccles, Ardelt, & Lord, 1995) and neglect (Slack, Holl, McDonald, Yoo, & Bolger, 2004). Parents under a lot of economic stress are also less likely to monitor their children adequately and are generally less warm towards their children (Bradley, Corwyn, McAddoo, & Coll, 2001). Given this, it is not surprising that lower Household Income was associated with more a negative Parenting Style.

Contrary to expectations, SES did not appear to be associated with Aggressive Behaviour in children. However, given that SES is expected to correlate with Aggressive Behaviour indirectly, and there is some evidence (from path analyses as well as literature) that indicators of SES are differentially associated with aggressive behaviour (Geyer et al., 2006; Næss et al., 2005), path analyses with SES deconstructed into its indicators (as in Study 1) may have shed some light on these findings. I was not, however, able to utilize path analyses (as I had in Study 1) due to the limited sample size. It is clear that the mechanisms to explain the relationships between SES and Aggressive Behaviour require further investigation (Letourneau et al., 2011; Oakes & Rossi, 2003; Piotrowska et al., 2015; Seedat et al., 2009; Ward et al., 2007a).

Unexpectedly, findings were in keeping with only some of my hypotheses. I expected SES to be associated with Aggressive Behaviour via multiple routes (i.e., factors). Specifically, I expected SES to be indirectly associated with on Aggressive Behaviour via (1) Intellectual Functioning and (2) Parenting Style. In young adolescents, the indirect relationship via Parenting Style materialised while the relationship via Intellectual Functioning did not; path analysis indicated that SES (i.e., Household Assets) was negatively associated with Intellectual Functioning, but that Intellectual Functioning was not associated with Aggressive Behaviour either directly or indirectly (i.e., via Child Empathy). Furthermore, the absence of an association between the other indicators of SES (i.e., Mother's HLOE and Household Assets) and Intellectual Functioning was unexpected, as both material and non-material resources should be correlated with SES, which in turn should affect Intellectual Functioning (Guo & Harris, 2000). These unexpected findings could, however, be in part explained by the SES measure employed (to be addressed shortly).

In children, on the other hand, I investigated the role of the interactions of SES with (1) Intellectual Functioning, and (2) Parenting Style on Aggressive Behaviour. These interactions were not associated with Aggressive Behaviour in this sample. Admittedly, the absence of these interactions is odd. One possible explanation is that the interaction could have been obscured by the use of a composite measure of SES. To elaborate, in young adolescents, path analyses clarified that only one indicator of SES (i.e., Household Income) was associated with Aggressive Behaviour via Parenting Style. In this instance, deconstructing SES into its constituent indicators provided insight into the relationship between SES and Aggressive Behaviour. Unfortunately, as discussed earlier, further investigation via path analyses in this child sample was not a viable option.

The absence of the associations of SES via multiple factors could be considered unexpected given previous finding supporting these multiple influences, as well as the importance SES has been afforded in contributing to aggressive behaviour (Letorneau et al., 2011; Piotrowska et al., 2015; Ward, 2007a). Previous studies have, however, demonstrated that although SES plays an important role in contributing to behavioural problems such as aggression (1) the magnitude of the relationship was small and (2) the underlying mechanisms are not very well understood (Oakes & Rossi, 2003; Letorneau et al., 2011; Piotrowska et al., 2015). Moreover, as alluded to earlier, the SES measure employed may well have contributed to these unexpected findings by undermining findings.

The SES composite measure comprised measures of three indicators, namely Household Income, mother's HLOE, and Household Assets; the measures of mothers' HLOE and Household Assets were, however, somewhat problematic. For one, there was not much variability in mothers' HLOE. Additionally, there was no way of accounting for the quality of education received. Given the marked disparities in the quality of schooling in South Africa (see van der Berg, Taylor, Gustfsson, Spaull, & Armstrong, 2011), this was problematic. Furthermore, the measure of Household Assets did not allow for variability, as it was too vague. To illustrate, for example, it does not distinguish between someone who owns a 30 year old car and someone who owns 3 new cars; it simply asks whether you own at least one car. It also does not differentiate between someone who owns a very expensive car and someone who owns a very old and/or inexpensive car. Furthermore, the presence of very basic resources such as running water and flushing toilet, for example, places one at the ceiling of the scale. As a result, an argument can be made that this index is only appropriate for very low SES samples. In these ways, the composite measure of SES was undermined by the inadequate measurement of two of its three indicators. Household Income was the only indicator of SES that reflected real variation. It follows that Household Income is the only indicator that could be meaningfully interpreted.

At face value then, findings suggested that investigating the roles of separate indicators of SES may be more useful than employing a composite score for SES. This may well be the case; however, given the limitations of the SES measure (discussed above), this statement should be made tentatively. To clarify, it is not only the composite measure that was undermined, but also two of the three indicators. As a result of limitations of the SES measure employed in this dissertation, only findings regarding the role of Household Income could be stated with more confidence. As path analysis was not employed in Study 2, a comparison across age bands was not possible.

Important to note is that this difficulty in measuring SES is a methodological challenge faced by most researchers. There has been much debate surrounding how best to measure SES (Bradley & Corwyn, 2002; Oakes & Rossi, 2003). As it has been argued that a composite measure of SES that takes into account various indicators of SES would be able to more adequately capture variation in socioeconomic position in developing countries (Barnes et al., 2007; Booysen, 2001; Cooper et al., 2012; Myer et al., 2008), a composite measure was employed in this dissertation. However, how to best create such a composite is unclear (Bradley & Corwyn, 2002). On the one hand, it is likely that one indicator is not adequate at capturing variation in socioeconomic position, promoting the value of a composite measure. On the other hand, there has been some evidence that SES indicators which have been used to date do not all correlate with one another, and also differentially correlate with aggressive behaviour, thus highlighting the value of single indicators. Bradley and Corwyn (2002) posit that the choice of how to measure SES should be determined in part by (1) the question to be examined, (2) practical considerations regarding the acquisition of data, and (3) by the population the data is to be collected from. Overall, current findings favoured the 'separate indicators' approach to investigating the relationship between SES and Aggressive Behaviour. In sum, there was ample reason to expect that SES would significantly correlate with Aggressive Behaviour in this South African context. Findings were partially in keeping with this expectation as SES was implicated as correlate in young adolescents. Analyses further indicated that investigating the role of separate indicators of SES may well be more useful than employing a composite measure. However, these findings should be interpreted with caution, given the limitations of the SES measure. The relationship between SES and Aggressive Behaviour was therefore not entirely clear. There was, however, at least one indication that the role of SES should not be overlooked when investigating the correlates of aggressive behaviour: Household Income was indirectly significantly associated Aggressive Behaviour via its association with Parenting Style in young adolescents living in the Western Cape of South Africa.

Was Parenting Style associated with Aggressive Behaviour? In terms of the role of Parenting Style, I hypothesized that negative Parenting Style would be associated with increased Aggressive Behaviour in children and young adolescents. My findings were in keeping with this hypothesis. In young adolescents, Parenting Style was consistently associated with Aggressive Behaviour; Parenting Style was identified as a significant correlate in Phase 1 of Study 1 (hierarchical regression analyses), replicated in Phase 2 of Study 1 (hierarchical regression analyses), and once again identified as a significant correlate

in post-hoc path analyses. Path analyses revealed a direct association between negative Parenting Style and increased Aggressive Behaviour. In children, findings indicated that Parenting Style was the only significant correlate of Aggressive Behaviour, and explained a moderate amount of variance. Together, these findings suggested that Parenting Style was associated with Aggressive Behaviour in children and young adolescents living in the Western Cape of South Africa.

These findings are in keeping with a large body of international studies (see Chapter Four). There has, however, been very little investigation into this relationship in the South African context, and there has been some indication that this hypothesis might not hold for all South African samples (see Ward et al., 2015). One explanation is that Ward and colleagues' (2015) findings were compromised and limited by poor psychometric performance of their Parenting Style measure. A second explanation is that it is possible that this relationship exists in certain sub-contexts in South Africa, as South Africa is known to be a multi-cultural nation with a very heterogeneous population living in very different contexts. Replication analysis supporting Parenting Style as a correlate of Aggressive Behaviour in young adolescents and the magnitude of the role of Parenting Style in children, however, encourage confidence in my findings: In keeping with international findings then, negative Parenting Style was associated with increased Aggressive Behaviour in children and young adolescents in this South African context.

Essentially, parents who positively reinforced good behaviour, whose disciplining was consistent, and who supervised/monitored their children, were less likely to report Aggressive Behaviour in their child. These findings can be explained by the tenets of behaviour modification such as operant conditioning and Social Learning Theory. For example, positive reinforcement of good behaviour increases the likelihood this behaviour, and the consistency of reinforcement of behaviour further increases the likelihood of this behaviour (operant conditioning). If a child is inconsistently punished for aggressive behaviour, he/she is likely to struggle to understand the link between behaviour and consequence. Consequently, there is a greater likelihood that aggressive behaviour will persist. Another explanation is that children learn how to behave from others observing, imitating, and modelling others' behaviour (Social Learning Theory, Bandura, 1977). This allows them to form mental representations of behaviour. Children whose parents are cold, withhold love, and employ harsh punishment (negative parenting practices), for example, are more likely to model such behaviour in their interactions with others. This in turn increases the likelihood of inappropriate (harmful) behaviour towards others. Overall, positive

parenting practices such as positive reinforcement of good behaviour, consistent disciplining, and adequate supervision/monitoring facilitate the learning of appropriate behaviour. It follows that if a child is not rewarded for good behaviour, receives inconsistent disciplining, and is not adequately supervised, the likelihood of aggressive behaviour should increase – as demonstrated in my findings.

As expected, the role of Parenting Style differed across age bands. While Parenting Style was associated with Aggressive Behaviour in children and young adolescents, it appeared to be a more influential correlate in children. Parenting Style was identified as the only significant correlate of Aggressive Behaviour in children, while other correlates were also identified for young adolescents. This is in keeping with my expectation that younger children's behaviour when compared to young adolescents' behaviour would be more heavily influenced by external context factors than internal context factors. These findings also echo the literature indicating that the importance of parenting practices changes as a function of age (Dodge et al., 2008; Hoeve et al., 2009). As other life events and peers come to have more of an influence than parents on children as they age (Hoeve et al., 2009), the decreasing influence of Parenting Style across children and young adolescents makes sense.

One question that remains unanswered is that of why Parenting Style was not consistently associated with Aggressive Behaviour in young adolescents across Phases 1 and 2 to the same degree. In Phase 1 of Study 1, β values suggested that Parenting Style was the least important of the variables in the model, and that on its own it did not play a role in Aggressive Behaviour. In contrast, in Phase 2, Parenting Style was the strongest correlate of Aggressive Behaviour in this sample (according to β values). It is possible that these inconsistencies in findings may have been an artefact of (1) employing regression analyses and (2) sample size. To clarify, regression analysis assumes that the relationship being modelled is linear and that contributors combine additively. It could therefore not simultaneously investigate the role of all correlates. A better analytical approach would have been to evaluate a system of regression equations simultaneously, as direct and indirect associations between correlates were likely. For this, however, a larger sample size was necessary. Which brings me to the next point: It is also possible that the difference in the explanatory value of Parenting Style across phases was a consequence of a small sample size for each phase (i.e., each $n = 80$). Given this, an argument can be made that post-hoc path analyses conducted on the full young adolescent sample ($N = 160$) provided a more accurate reflection of the relationship between Parenting Style and Aggressive Behaviour as it (1) evaluated the contributions of variables simultaneously and (2) utilized a large enough

sample. Regardless of the explanation, however, findings drew attention to the importance of Parenting Style as correlate of Aggressive Behaviour in both children and young adolescents.

In sum, there was reason to expect that Parenting Style would be significantly associated with Aggressive Behaviour. While the South African literature is limited, studies undertaken outside of South Africa have demonstrated that parenting practices play a pivotal role in child development, and that negative parenting is considered by some the most established risk factor for the development of behavioural problems such as aggression (Dadds, 1995; Prinz & Jones, 2003). The importance of Parenting Style is echoed in findings in this dissertation; Parenting Style was identified as a significant correlate of Aggressive Behaviour in young adolescents and there was some indication that it was even more so in children. Furthermore, while some discrepancies in the degree of association were evident in young adolescents, findings supported the notion that Parenting Style played an important role in explaining Aggressive Behaviour in children and young adolescents in this South African context.

Were other factors associated with Aggressive Behaviour? While no other specific hypotheses were posited, I expected that other contextual factors (at least some) aside from Child Empathy, SES, and Parenting Style would be associated with Aggressive Behaviour in children and young adolescents. Differences across age bands were also expected; given the near absent South African literature, however, I did not hypothesize specific differences. Findings were in keeping with these expectations. In young adolescents other factors identified as important included Gender (Phase 1 hierarchical regression analyses) and Parent Empathy (bivariate analyses across all samples and path analyses). In children, no other factors were identified. Three points stood out. (1) A relationship between Intellectual Functioning and Aggressive Behaviour did not materialize. (2) Gender did not consistently correlate with Aggressive Behaviour in young adolescents, and also did not correlate with Aggressive Behaviour in children. (3) Parent Empathy was flagged given its association with Child Empathy (bivariate analyses across all samples demonstrated significant correlations between Child and Parent Empathy components). These three points are discussed in brief below.

To start with, a relationship between Intellectual Functioning and Aggressive Behaviour did not materialise, as is perhaps to be expected in a sample of typically developing individuals. There is some evidence that below average intelligence correlates with increased likelihood of conduct disorder, oppositional defiant disorder, disruptive behaviour disorder, delinquency and antisocial behaviour, and well as externalising behaviour

(Hinshaw, 1992; Moffit, Lynam, & Silva, 1994; Vance et al., 2002). Specifically, below average intelligence has been shown to correlate with these behaviours via association with other variables such as self-regulation, SES, and poor school performance, for examples (Ayduk, Rodriguez, Mischel, Shoda, & Wright, 2007; Lynam, Moffit & Stouthamer-Loeber, 1993). However, typically developing individuals are not expected to perform so poorly on IQ as to expect this relationship to materialize. To illustrate, while SES and Intellectual Functioning were associated (as repeatedly seen in bivariate analyses), Intellectual Functioning was not associated with Aggressive Behaviour. Furthermore, while mean scores for Intellectual Functioning could be described as sub-average by Western standards, it is well-documented that South African children and adolescents score lower on the WASI than Western population norms (Anderson, 2001; Foxcroft & Aslam, 2006; Gaylar, 2005; van Wyhe, 2012). While there was sufficient variability in IQ scores, the vast majority of scores fell within the 'normal range'.

Aside from this, international literature also dictates that Gender should correlate with Aggressive Behaviour in typically developing children and young adolescents. Specifically, this body of literature has demonstrated that males are more likely to exhibit aggressive behaviour than females, and that this difference is more prominent in children and decreases as a function of age (Bongers et al., 2003, 2004; Crick & Dodge, 1996; Keenan & Shaw, 1997; Tremblay & Côté, 2009). My findings, however, partially contradicted this international theory. In young adolescents, Gender predicted Aggressive Behaviour only in the Phase 1 of Study 1 sample[21] (hierarchical regression analyses). In this one sample, males were more likely to exhibit Aggressive Behaviour than females. In the second adolescent sample (Phase 2 of Study 1), and in children (Study 2), Gender did not correlate with Aggressive Behaviour. Furthermore, unexpectedly, boys scored significantly higher than girls on Aggressive Behaviour only in the sample where Gender was significantly correlated with Aggressive Behaviour (i.e., Phase 1 of Study 1). This finding can at least partially explain why Gender did not consistently correlate with Aggressive Behaviour, and should be noted as an interesting diversion from international findings. Together these findings suggest the possibility that there is no difference in Aggressive Behaviour across Gender in typically developing coloured children and young adolescents living in the Western Cape of South Africa.

[21] Note that the role of Gender was not investigated in post-hoc analyses given as a result of sample size and differences in distribution of Aggressive Behaviour across Gender.

The difference in aggressive behaviour across Gender is often explained by differences in brain maturation and socialization processes. An explanation based on brain maturation would, however, not hold for findings in this dissertation. To elaborate, there is evidence that girls' brains mature more rapidly than boys' (Christov-Moore et al., 2014; Palmer, 2003), and as a result, girls have access to skills which serve as protective factors against aggressive behaviour before boys do. If one were to explain the absence of Gender as correlate of Aggressive Behaviour in terms of brain maturation, one would have to argue that factors which could affect brain maturation processes would selectively influence the female brain, resulting in females in this sample demonstrating as much aggressive behaviour as males. This seems an unreasonable argument to make. The more plausible explanation is one based on socialization processes. It is more reasonable to argue that the context under investigation in this dissertation promotes aggressive behaviour more equally in boys and girls. Several mechanisms can be posited. For one, a culture of gangsterism in the Western Cape may promote aggressive behaviour in girls, as evidenced by the recruitment of girls into gangs and the existence of all-girl gangs (Joe & Chesney-Lind, 1995; Ward, 2007a). Furthermore, a culture of violence pervading South Africa promotes the use of aggressive behaviour through observational learning. Additionally, given the high levels of crime and violence that pervade our society (Foster, 2012), girls may be encouraged to behave aggressively as a defence. It is possible that behavioural norms in this particular South African context may differ from international norms. These differences could explain why findings suggest that Gender does not correlate with Aggressive Behaviour in typically developing coloured children and young adolescents living in the Western Cape of South Africa.

Parent Empathy was also flagged as important to consider given its association with Child Empathy. While the relationship between parent empathy and aggressive behaviour in children and young adolescents has not yet been investigated, theory dictates that parent empathy could correlate with child behaviour via its association with child empathy. Although much further investigation is necessary, recent investigations support intergenerational transmission of empathy (Hawk et al., 2013; Soenens et al., 2007; van Lissa et al. 2014). Given associations between child empathy and aggressive behaviour evident in the literature (and in this dissertation), it was reasonable to expect that Parent Empathy could be associated with Aggressive Behaviour indirectly through its impact on Child Empathy. I was therefore interested in investigating whether Parent Empathy is indirectly correlated with Aggressive Behaviour via its association with Child Empathy.

Findings supported theoretical expectations. Parent Empathy was consistently associated with Child Empathy in both children (correlation analyses) and young adolescents (correlation and path analyses). Specifically, the components of Parent Empathy were significantly positively correlated with their respective Child Empathy components across all three samples. However, as Child Empathy components were associated with Aggressive Behaviour in young adolescents and not in children, the indirect relationship between Parent Empathy and Aggressive Behaviour via Child Empathy was only seen in young adolescents (demonstrated in path analyses). Importantly, even though Parent Empathy was only indirectly associated with Aggressive Behaviour in young adolescents, it is important to bear in mind the association between Parent and Child Empathy in younger children (i.e., the zero-order correlations from correlation analyses). Findings are in keeping with the notion that parents play a pivotal role in child development and subsequent behaviour.

To summarize, findings highlighted (1) the predictive value of Empathy components, (2) the importance of context in explaining behaviour (and specifically SES in South Africa), and (3) that the correlates of Aggressive Behaviour differed across age bands. First and foremost, Child Empathy components, particularly Cognitive Empathy and Affect Regulation, were identified as correlates of Aggressive Behaviour in young adolescents, while none of the Child Empathy components were in children. Next, SES was unexpectedly identified as an important contextual factor for this South African context *only* in young adolescents (i.e., not in children). Furthermore, factors situated within all levels of the child's ecosystem of contexts were associated with Aggressive Behaviour in children and in young adolescents. At the individual level, Child Empathy components (Cognitive Empathy and Affect Regulation) were associated with Aggressive Behaviour in young adolescents. At the everyday contexts level, Parenting Style and Parent Empathy were associated with Aggressive Behaviour in young adolescents, while only Parenting Style was associated with Aggressive Behaviour in children. At the broader societal and community context, SES was associated with Aggressive Behaviour in young adolescents. Furthermore, differences across age bands were apparent (i.e., qualitative comparison). Specifically, findings indicated that external factors played a larger role in explaining Aggressive Behaviour in children when compared to young adolescents. Aggressive Behaviour was therefore associated with numerous factors and these factors differed across age bands (qualitative comparison), as expected.

Note that hypotheses were predominantly informed by studies undertaken outside of South Africa. While the majority of my hypotheses were supported, some findings were

somewhat unexpected. Most notably, findings suggested that Gender may not have played a role in Aggressive Behaviour in this South African context. The divergence from international findings draws attention to the need for further investigation in South African samples to clarify differences and similarities across sub-contexts in this country. However, this divergence can also be explained by theoretical and methodological improvements on previous studies (to be discussed next), which called for the merger of several bodies of literature. Given probable cultural (contextual) differences, the scarcity of research in South Africa, and the theoretical and methodological improvements on international investigations, divergence from previous findings is to be expected.

Theoretical and methodological improvements on previous studies. To recap, despite extensive international investigation, our understanding of the relationship between empathy and aggressive behaviour is far from clear. Several theoretical and methodological issues can be drawn on to explain this. In brief, (1) investigations have previously employed inconsistent and inadequate conceptualisations of empathy as well as broad definitions of aggressive behaviour. (2) The importance of taking context into account has been erroneously underemphasized. (3) Findings have been hampered by measurement issues. (4) The relationship between empathy and aggressive behaviour has predominantly been investigated in a variety of non-typically developing samples. Each of these issues has compromised our understanding of the relationship between empathy and aggressive behaviour to some extent. I improved on previous studies by addressing each of these issues in the current research.

First and foremost, for the purposes of this investigation I conceptualised empathy as comprising an Affective, a Cognitive, and an Affect Regulation component, and argued that empathy-driven behaviour arises from the interaction between the underlying brain processes involved in these three empathy components. In accordance with numerous scholars (albeit not all), I agreed that empathy is a multidimensional construct, with Affective and Cognitive dimensions (e.g., Blair, 2005; Cohen & Strayer, 1996; Davis, 1983; Decety & Jackson, 2004; de Kemp et al., 2007; Eisenberg, 2002; Preston & de Waal, 2002). However, in accordance with a more recent neurobiological approach to investigating empathy, I argued that a more sophisticated understanding of the relationship between empathy and aggressive behaviour demands that we take into account how empathy is regulated, and specifically, how the affective states that are generated by affective empathy are regulated (Decety, 2011; Decety & Jackson, 2004). While processes of affect regulation are not specific to empathy, they play an important role in whether and how empathic processes translate into behaviour. It is therefore integral that we investigate the role of these regulatory processes (i.e., processes of

affect regulation) when investigating the relationship between empathy and aggressive behaviour – as was done in this dissertation. Moreover, the current research is the first to have employed this approach to investigating the relationship between empathy and aggressive behaviour.

This conceptualisation of empathy called for the integration of two largely isolated bodies of literature; one concerned with Affective and Cognitive Empathy and their relation to aggressive behaviour and the other concerned with Regulation – specifically affect regulation – and its relation to aggressive behaviour. The first body of literature has yielded inconsistent findings to date, while the second has more consistently linked poor affect regulation to increased aggressive behaviour. This makes sense given that empathy needs to be regulated. Measuring the role of empathy in isolation from the processes that regulate empathy should therefore yield inconsistent findings. I therefore argued that a more accurate reflection of the relationship between empathy and aggressive behaviour would come from integrating these two bodies of literature to some extent; this dissertation does so in its conceptualisation of empathy.

Additionally, for the purposes of this investigation I employed a specific definition of aggressive behaviour; I operationalised aggressive as externalising aggressive behaviours (i.e., rule-breaking and aggressive behaviours). Such an approach was necessary as aggressive behaviour in its broadest sense, as it has too often been defined, can be explained by a multitude of factors. To clarify, there is ample evidence to demonstrate heterogeneity in aetiology of broadly defined aggressive behaviour (Burke et al., 2002; Frick, 2009; Loeber & Stouthamer-Loeber, 1998; Moffit, 2006; Reebye, 2005). It has therefore been recommended that investigators use specific definitions of the problem behaviour they want to address (Bandura, 1973; Tremblay, 2000). Consequently, I chose this particular definition of aggressive behaviour as externalising behaviours have been shown to be the most prevalent and persistent maladaptive behaviour in childhood, and are considered a major risk factor for later aggressive, delinquent, and criminal behaviour (Campbell, 1995; Farrington, 1989; Moffit, 1993). Moreover, these behaviours are to be expected in everyday behaviour in varying degrees. Defining aggressive behaviour as externalising behaviour problems was therefore relevant for the typically developing samples under investigation in this dissertation. I argued that together, utilizing the conceptualisation of empathy employed in this dissertation, along with a specific definition of aggressive behaviour as in this dissertation, should facilitate more consistent findings and, more importantly, more meaningful and accurate findings.

Next, in contrast to previous investigations of the relationship between empathy and aggressive behaviour, the current research stressed the importance of taking context into account. I adopted a contextual approach (i.e., EST); I investigated the role of empathy while concurrently investigating the role of several other contextual factors situated at all levels of the individual's ecosystem of contexts. I argued that the role of empathy would be more accurately revealed when investigating its role concurrently with other factors. While this approach can be considered a gold standard in behavioural research, it has surprisingly been lacking in investigations into the relationship between empathy and aggressive behaviour (Lovett & Sheffield, 2007). In other words, the effect of third variables is very rarely investigated in this body of literature. The emphasis placed on the importance of a contextual approach to understanding the relationship between empathy and aggressive behaviour in the current research was therefore an important improvement on previous investigations.

Additionally, employing a contextual approach called for the integration of several bodies of literature concerned with the correlates of aggressive behaviour – once again an improvement on previous investigations. Previous investigations have largely looked at the correlates of aggressive behaviour (including empathy) in relative isolation from one another. As a result, there is a fair amount of uncertainty regarding the predictive value of empathy as well as other contextual factors in the form of inconsistent findings. A contextual approach where the role of numerous factors are investigated concurrently, such as employed in this dissertation, therefore more accurately reflects not only the role of empathy, but also the role of the other contextual factors measured in this dissertation. To my knowledge, the current research is the first to have employed such a comprehensive approach to investigate the relationship between empathy and aggressive behaviour.

Thirdly, the current research attempts to counter previous measurement issues in a number of ways. To elaborate, standardized and reliable measures are hard to come by internationally, and are near non-existent for the South African context. As far as possible, I therefore employed measures of empathy and a measure of aggressive behaviour that have shown to be most appropriate for the South African context to date. Additionally, I adopted a multi-method and multi-informant approach, and employed several measures of empathy. Multiple measures of empathy are encouraged given the multi-dimensional nature of empathy; this approach has, however, rarely been adopted (Schaffer et al., 2009). As poor measurement compromises findings, addressing measurement issues as has been done in this dissertation, should facilitate a more accurate understanding of the relationship between empathy and aggressive behaviour.

Lastly, the final hindrance to our understanding of the relationship between empathy and aggressive behaviour lies in sample choice. In contrast to the majority of previous investigations, I chose to investigate the relationship between empathy and aggressive behaviour in typically developing samples of children and young adolescents. The use of predominantly clinical samples to date has had several repercussions. Most importantly, it has resulted in the employment of predominantly adolescent and adult samples, and the neglect of child samples. Since behaviour is differentially determined across age, and early aggressive behaviour is associated with later aggression, understanding the correlates of aggressive behaviour early on has maximal potential to inform strategies to reduce and prevent later aggression. Investigating this relationship across age bands is therefore preferable. The current research adopts such a developmental approach by investigating the correlates of aggressive behaviour in young adolescent samples (Study 1; aged 11-13 years) and a child sample (Study 2; aged 6-8 years).

To conclude, the current dissertation contributed to the knowledge base of empathy as correlate of aggressive behaviour in South Africa, as it is the second investigation into the relationship between empathy and aggressive behaviour in this country. Specifically, this dissertation provided insight into the role of empathy as well as several other correlates of aggressive behaviour in typically developing children (aged 6-8 years) and young adolescents (aged 11-13 years) living in the Western Cape of South Africa. This dissertation also contributed to the international knowledge base as it improved on previous studies conducted outside of South Africa. It did so by addressing a number of theoretical and methodological issues which have hampered investigations to date. Further strengthening of the South African knowledge base is necessary as theoretical contributions such as those from this dissertation have implications for practise.

Identifying the early risk factors for child and adolescent aggressive behaviour is a critically important step for developing successful intervention programmes to reduce and prevent later aggressive behaviour. The most effective intervention programmes in this context require strategies that are comprehensive (i.e., address multiple factors) and also developmentally-timed (i.e., recognize the impact of development on behaviour). On its own, the theory generated from this dissertation should not be used to inform intervention strategies. More studies such as the current research are necessary to generate theory to inform effective interventions in this South African context.

Limitations and Future Directions

While this dissertation offers valuable insights into the correlates of aggressive behaviour in typically developing coloured children and young adolescents living in the Western Cape province of South Africa, several limitations temper the interpretation of results. These limitations apply to both studies unless otherwise stated, and are subsequently discussed.

Measurement Considerations

Reliability and validity of measures. It is important to start by acknowledging the limitations imposed by measurement, as interpretations greatly depend on the integrity of the measures employed. To start with, locating measures that have demonstrated reliability and validity in a South African context (and internationally, in the instance of empathy; Dadds et al., 2008) was challenging. This difficulty could be explained by the limited number of investigations into the correlates of aggressive behaviour in South Africa to date. To address this, as far as possible, I employed measures which had previously been employed in South African studies and/or had demonstrated some usefulness in the South African context. Furthermore, while some of the questionnaires employed had previously been employed in South African studies and have demonstrated good psychometric properties outside of South Africa, none of them have yet been formally validated for use in the South African context. I therefore assessed the internal consistency reliability of questionnaires before continuing with analyses. For the most part, questionnaires demonstrated adequate to very good internal consistency across all samples thus supporting the conclusion that the questionnaires employed in this dissertation (for the most part) were reliable and valid measures for this South African context.

There was, however, some indication from item analyses that the internal consistency reliability of questionnaires employed in this dissertation could be improved by removing certain items – particularly in the instance of the ASCQ (the measure of Attachment Style). Only in the instance of the ASCQ, however, would alpha improve notably by removing items. Furthermore, only the ASCQ performed below the alpha threshold in all three samples in this dissertation (α = .65). Consequently, only the ASCQ was deemed problematic, and its less-than-ideal psychometric performance also ensured its omission from post-hoc path analyses in Study 1. Moreover, while I entered Attachment Style in hierarchical regression analyses, findings were to be interpreted bearing concerns with reliability in mind.

Additionally, it is worth noting that the questionnaires measuring Child Regulation (ARC) and Parenting Style (APQ) performed better in the young adolescent samples (Study 1) than in the young child sample (Study 2), where both performed below the alpha threshold for this dissertation. This could be interpreted as these measures being more useful in older samples of typically developing individuals in South Africa. However, it must also be weighed against the fact that alpha is unduly influenced by the number of items in a questionnaire and these questionnaires consisted of very few items (12 and 9, respectively). Nevertheless, the usefulness of the parent-report version of the ARC, particularly for younger children, was placed in doubt. To elaborate, the ARC was originally developed as a self-report questionnaire, which makes sense given that it is difficult to report on another person's internal processes. As younger children are known to struggle with communicating about their emotions, I adjusted this questionnaire to parent-report of child. This generated a problem of its own in that several parents noted that certain questions/items were difficult to answer of their child, and that they therefore gave their 'best guess.' These pertained specifically to the questions on using Reflection as a strategy for affect regulation (e.g., "Thinking about why he/she has different feeling helps him/her learn about himself/herself.") Understandably, this may be difficult to answer of your child regardless of age. An argument can, however, be made that it would be more difficult to answer of your young child (6-8 years of age) than it would be of your young adolescent (11-13 years of age) as the ability to talk about your emotions and reflect is likely to improve with age. Older children are therefore more able to engage with their parents in a manner that would allow parents more insight into their child's internal processes. Given all this, the ARC as employed in this dissertation (i.e., parent-report) would be better suited for use in older samples. Findings regarding the role of Regulation (i.e., affect regulation) as correlate of Aggressive Behaviour in younger children must therefore be interpreted bearing this in mind.

Despite the improvements in internal consistency removal of certain items could afford, the original versions of the questionnaires were employed. The primary reason for this decision was to facilitate comparisons with previously conducted studies. Moreover, the proliferation of arbitrary instruments in any field seldom adds to the quality of knowledge in that field. It is, however, important to be aware that analyses indicated that improvements could be made for these South African contexts, which must be taken into account when interpreting findings. Large scale validation studies are necessary if we are to adjust these questionnaires for the South African context. As van der Merwe and Dawes (2009) posit, one

of the most important directions for future research is to test the applicability of measurement instruments developed internationally in the South African context.

It is also important to note is that questionnaires (aside from the QCAE and the CBCL) consisted of relatively few items (i.e., 15 items or fewer), which not only contributed to internal consistency values (as mentioned earlier), but also made these measures relatively crude. In particular, the Short Form APQ (measure of Parenting Style) is considered an informative tool for assessments of parenting practices related to behavioural problems in children (Elgar et al., 2007). It is, however, comprised of only 9 items measuring three parenting style dimensions, namely Positive Parenting, Inconsistent Discipline, and Poor Supervision. While the Full APQ could provide more detailed information regarding parenting practices, the psychometric performance of this longer version of the APQ has been poor in studies conducted in South Africa; the best performance came from the three dimensions measured by the Short Form APQ (Madalane, 2007; Ward et al., 2015). As a result, the Parenting Style measure employed in this dissertation did not tap into information regarding parenting style dimensions such as Parental Warmth and Support, for example, dimensions which have repeatedly been tied aggressive behaviour (Barnes & Farrell, 1992; Buschgens et al., 2010; Juang, & Silbereisen, 1999; Strayer & Roberts, 2004). Given the predictive value of parenting practices such as Parenting Style, it is integral that future investigations include measures which are more sensitive to a range of parenting practices.

A final point regarding questionnaire measures concerns the measure of SES which was limited in its interpretative value. As discussed earlier, SES is a complex theoretical term which has proved challenging to measure. This was also the case in this dissertation. While I employed a composite measure of SES, an argument can be made that two of the three indicators comprising this measure (namely mother's HLOE and Household Assets) were somewhat problematic (see earlier discussion). Only Household Income – the third indicator – could therefore be meaningfully interpreted with some confidence. Moreover, given that SES is argued to be a contextual factor whose should not be overlooked in South Africa (Seedat et al., 2009; Ward, 2007a), future investigations should be sure to utilize a more sensitive measure of SES. Furthermore, while there is still some debate surrounding whether a composite measure of SES or separate indicators should be utilized in investigations worldwide, an approach including multiple indicators is arguably more thorough.

Non-questionnaire measures employed in this dissertation also posed some challenges. To start with, the measures of Intellectual Functioning (WASI and Digit Span task) were not developed in South Africa or normed for the South African context. Ideally,

tests of Intellectual Functioning adapted for South Africa would be employed; there are, however, no current tests or current norms available. To retain compatibility with international studies, these Western tests were used. While scaled scores were used, findings were unlikely compromised as participants were being compared to their demographically matched peers.

One of the non-questionnaire measures of empathy (i.e., child tasks) was also noted to be markedly problematic, namely the Snap Game (i.e., Affect Regulation), and findings regarding this measure are to be interpreted with caution. This task was developed by a team of researchers at the University of Cape Town and piloted in 2013. It was subsequently adapted, but still appears to be problematic for a number of reasons. For one, in this task frustration is induced by setting the child up to repeatedly lose at a game of cards. This task was designed to be a measure affect regulation, but a number of extraneous variables were not controlled for (such as competitiveness, liking the prize, previous exposure to the game). Furthermore, only one investigator rated child behaviour – inter-rater reliability could therefore not be assessed. Also noted throughout the assessments, instructions were also too complex for many of the younger children (i.e., aged 6-8 years) to follow, which consequently resulted in exclusion of this task from analysis in the child sample. The concern with the validity of this measure is furthermore reflected in unexpected inverse correlations with other variables and very high standard deviations. Alternative measures of Affect Regulation are necessary in future investigations.

Type of measure. Finally, aside from the child task measures of empathy, all other variables were measured on the basis of parent-report (of their child or themselves), which has limitations and important implications. While obtaining parent-report measures of externalising aggression is a well-accepted practice in international investigations (e.g., Ducharme et al., 2011; Raine, Venables, & Mednick, 1997), this practice is not without its drawbacks. For example, parent-report is useful as it may overcome problems in reporting biases in children themselves, but parents too have reporting biases (Dadds et al., 2008). Self-report is prone to distortions of memory, for one. Self-report is also heavily affected by demand characteristics such as social desirability (Eisenberg-Berg & Hand, 1979). This is especially true of questionnaires measuring behaviours that are considered ‘good’ and ‘bad’ (Lovett & Sheffield, 2007). For example, it is understandable that parents are less likely to disclose harshly punishing their child (e.g., APQ). Furthermore, the general attitude that empathy is ‘good’ could also result in over-reporting of empathy (e.g., QCAE). It is also more socially acceptable for boys to be ‘less empathic’ and ‘more aggressive’ than girls; this

gender stereotype has interestingly not filtered into the current study's reports of empathy and aggressive behaviour, as would perhaps be expected.

Additionally, given that several of the variables measured in this research relied on parent-report, the relationships seen are likely to be an overestimation of the true relationships between these variables. In other words, strong relationships could be an artefact of type of measurement. For example, we would expect to see shared method variance in the correlations between parent self-report measures of the empathy components and parent-report measures of child empathy components. The sample size mitigates against these data validity concerns to some extent, as do the significance values for correlations between variables. It should also be noted that the scales employed have been extensively used in the international literature. Additionally, it is worth considering that parents are reporting on years of knowing the child in various situations. The child tasks employed are a one-off assessment of behaviour in one context only. Parent-report may therefore be a more reliable measure. Nevertheless, findings should be interpreted bearing this in mind.

A final limitation of measures employed is that only one measure of aggression was employed, while multiple measurements of behaviour are the ideal. For example, direct assessments such as playground observations, and ratings by multiple sources such as teachers and parents would have been ideal. However, this is a difficult task when narrowing down the operational definition of aggression, which is important in its own right. Furthermore, previous attempts at collecting data from the school environment (i.e., from educators) have not proven fruitful, yielding very poor quality data. For example, it was clear in some instances that educators simply ticked the same column in response to each item. In other instances, many items were left unanswered. One of the reasons for this difficulty in obtaining data from schools is that many classes in state schools are very large (40 – 50 children), meaning educators are overloaded, with very little time to complete questionnaires. While it was not within the scope of this research, where possible, future studies should aim to employ multiple measures of the aggressive behaviour they wish to investigate as well as better measures, such as direct observation of behaviour and ratings by classmates."

Research Design Considerations

Interpretation of findings should also be made bearing in mind the cross-sectional nature of the study. Children develop within an ecosystem of contexts, each of which plays an important role in behaviour. A cross-sectional investigation of the relationship between one particular variable and behaviour, as in the case of this dissertation, must therefore

assume that the contexts are stable within the individual's ecosystem – which we know is not true. Child behaviour measured at one point in time does not reveal the changes within the individual's context across time, which is what most accurately explains behaviour. For example, socioeconomic position is not necessarily stable. A measurement at one point in time could obscure our understanding if the individual rates high now, but this varied dramatically previously. Although we don't expect big variations, they may occur. For another example, quality of caregiving received by the child may vary quite widely depending on the caregiver's context. To exercise some control, samples were demographically matched on gender, SES, age, as well as language of schooling, and ethnicity. Although this does not control for individual changes across time, it adds a layer of control to the present moment. Additionally, some contexts are relatively stable, and therefore matching does afford an additional layer of control (e.g., gender). A longitudinal approach is necessary to reveal individual changes across time. For this reason, the longitudinal approach is also encouraged in developmental research.

Given the time constraints associated with this research, a cross-sectional design was employed in this dissertation. Had more time been available to conduct this research, both longitudinal and cross-sectional designs would have been incorporated. In an attempt to simulate a longitudinal design within the given time frame, samples from two age bands were recruited, and were matched on certain demographic variables for additional level of control. However, ideally, early risk factors need to be linked to actual later problem outcomes in terms of aggressive behaviour, which can only be achieved by longitudinal design. In future, employing studies with both of these designs will be integral to understanding the development of aggressive behaviour. To clarify, if we want to make claims about the relationship between empathy and aggressive behaviour, investigations should make use of repeated measurement of both empathy and aggressive behaviour, while considering the role of context. This level of attention to developmental processes is of great importance.

Sample Considerations

Sample size. As for sample, the current research would also have benefitted from a larger sample size. While sample size was adequate for hierarchical regression analyses, further investigation was limited given the sample size. To illustrate, path analysis could only be conducted with the overall young adolescent group (n = 160). Furthermore, given the biological and socialization differences across gender, which reflect in differences in aggressive behaviours across gender, a comprehensive developmental model must ask the

question of whether developmental pathways vary for males and females (Dodge et al., 2008). The variables employed here were expected to differ across gender – we had reason to expect gender-specific pathways. These differences could, however, only be investigated in regression analyses, given the sample size. Further investigation here would have been particularly valuable given that there was some indication that gender differences in Aggressive Behaviour may diverge from international findings. Important to note is that the sample size was a consequence of not only the limited time-frame available for this dissertation but also the labour-intensive data collection required for each participant-pair. Future studies should therefore aim to recruit not only larger samples, but also larger samples across gender.

One important advantage of recruiting larger samples is that structural equation modelling techniques can be employed. Techniques such as path analysis are particularly valuable given the complexity of multiple factors associated with behaviour. These techniques allow for the simultaneous modelling of complex interactions among risk and protective factors, which have been long hypothesized but rarely studied in an integrated manner. It can also clarify some of the inconsistencies seen in the literature. More sophisticated statistical analyses are the way forward. This does, however, require the recruitment of larger samples.

Sample context. Regarding the sample context, the samples employed in this dissertation set limits to the generalizability of findings. Specifically, findings from this dissertation are limited to typically developing coloured children (aged 6-8 years) and young adolescents (aged 11-13 years) living in the Western Cape of South Africa. These children and young adolescents, notably those from poorer communities, can be described as a high risk population given the high rates of aggression and violence and the influence of gang activity (via proximity to gang activity). This limitation of generalizability was intentional. Samples were kept as homogenous as possible on a number of contextual variables in an effort to control for extraneous variables. For one, age bands were kept relatively narrow as age is differentially associated with behaviour. For another example, only coloured participants were included in this investigation. This is because South Africa is a multi-cultural nation with a very heterogeneous population living in very different contexts. Furthermore, as mentioned previously, there are very few racially mixed communities in South Africa and particularly in the Western Cape. Each community likely has its own set of cultural norms and beliefs, such as beliefs about what is good and what is bad parenting. Additionally, while race cannot be reduced to SES, these two variables are still very strongly

linked. Just as we should not assume that risk and protective factors operate in the same manner across countries, we should not assume that they operate in the same manner across sub-contexts within South Africa. Reduction and/or prevention of the widespread aggressive behaviour in South Africa require that future investigations recruit individuals from multiple sub-contexts in South Africa. Moreover, full demographically stratified research projects spanning across many years are required.

One other point should be noted with regard to sample context. While both children and young adolescents participated in this dissertation, this dissertation more thoroughly investigated the correlates of aggressive behaviour in young adolescents than in young children. Consequently, interpretations regarding the correlates of aggressive behaviour in younger children are restricted. To elaborate, Study 1 employed replication analysis to investigate the correlates of aggressive behaviour in young adolescents while Study 2 investigated the correlates of aggressive behaviour in one sample only. Furthermore, while both studies employed hierarchical regression analyses, Study 1 also utilized path analysis - a statistical technique superior to regression analysis for this kind of investigation (i.e., to investigate complex relationships simultaneously). These different approaches were a direct consequence of the smaller sample recruited for Study 2. These differences in investigatory approach resulted in more nuanced understanding of the correlates of aggressive behaviour in young adolescents than in younger children. Given that behaviour is differentially determined across age, it is important that future investigations recruit children and adolescents and longitudinally track the correlates of aggressive behaviour. In fact, this tracking should ideally start as early as infancy (Tremblay, 2000). Given that early aggressive behaviour increases the likelihood of later such behaviour, targeted intervention as early as possible is best.

Theoretical Consideration

Finally, one important theoretical consideration requires attention; In the framework for empathy employed in this dissertation, Affect regulation is conceptualized as part of empathy. However, affect regulation is also one of many executive functions, many of which contribute to behaviour. This link between affect regulation and Executive Function is not articulated or explored in theoretical model employed in this dissertation. The question arises whether we should consider affect regulation as part of empathy or as an executive function. If the latter, for future directions we should consider thinking about investigating other

aspects of executive function when investigating the correlates of behaviour such as inhibition.

Summary and Conclusion

The current dissertation has added to the knowledge base of the correlates of aggressive behaviour in typically developing coloured children (aged 6-8 years) and young adolescents (age 11-13 years) living in the Western Cape of South Africa. To summarize, findings indicated that components of empathy (i.e., Cognitive Empathy and Affect Regulation) were associated with Aggressive Behaviour in young adolescents, but not in younger children. Specifically, reduced Cognitive Empathy and poorer affect regulation skills were each associated with increased Aggressive Behaviour in young adolescents. Other contextual factors implicated in increased Aggressive Behaviour in young adolescents were low SES, reduced Parent Empathy, and negative Parenting Style. In younger children, of the measures used only negative Parenting Style was associated with increased Aggressive Behaviour. Importantly, SES was flagged as correlate in one young adolescent sample (Phase 1 of Study 1) as well as in the overall sample of young adolescents (N = 160; post-hoc path analysis); however, its predictive value should be weighed against concerns regarding the measurement of SES. In addition to this, findings regarding the role of Gender as correlate were unexpected as they suggested that (1) Gender may well not be associated with Aggressive Behaviour in either young adolescents or children and (2) that boys and girls may not differ in their levels of Aggressive Behaviour in this South African context. This suggestion stands in stark contrast to previous literature conducted outside of South Africa. As can be seen, the current research added to the South African knowledge base; some questions, however, require further investigation.

The current dissertation also contributed to the international investigations as it improved on previous studies conducted outside of South Africa. A number of theoretical and methodological issues which have hampered investigations to date were addressed. In terms of theoretical improvements, I conceptualised empathy as comprising affective and cognitive components as well as a self-regulatory component concerned with affect regulation. I argued that this approach, which has not previously been employed in research investigating the relationship between empathy and aggressive behaviour, provides a more nuanced understanding of the relationship between empathy and aggressive behaviour. This is because this conceptualisation incorporates the fact that empathy is something that needs to be regulated. I also employed a specific definition of aggressive behaviour, which is likely to yield more accurate findings than broad definitions of aggressive behaviour which are too often employed in the literature. In terms of methodological improvements, I employed a contextual approach to investigating the relationship between empathy and aggressive

behaviour – very few studies have, however, taken this approach. As behaviour is embedded in context, this approach is preferable. In addition to this, to address measurement issues, I employed a multi-method, multi-informant approach to understanding behaviour, and employed multiple measures of empathy. As far as possible, I utilized measures which had previously demonstrated usefulness in South African samples. Finally, perhaps more of a hindrance to our understanding is that previous studies have largely investigated the relationship between empathy and aggression in child and adolescent samples presenting with clinically significant aggressive behaviour. Consequently, the understanding of this relationship in typically developing young people is limited. To address this, I recruited typically developing participants – both younger children and young adolescents.

The primary focus of this research was theoretical. In terms of practical implications (i.e., intervention/prevention), the most effective intervention programmes would be those which address multiple contextual factors identified as playing a role in aggressive behaviour. Importantly, these intervention programmes should also recognize that correlates manifest differently across age. Given the scarcity of studies investigating the correlates of aggressive behaviour in South Africa, more studies such as the current research are necessary to generate theory to inform effective interventions in this South African context.

Importantly, while this dissertation provided important theoretical contributions, certain limitations temper findings. The limitation of generalizability is perhaps most important to remember. Findings should only be applied to typically developing coloured children (6-8 years) and young adolescents (11-13 years) living in the Western Cape of South Africa. While this dissertation has added to the South African knowledge base, further investigation recruiting samples from the many sub-contexts in this country is necessary – particularly if we are to use this knowledge to inform practise.

To conclude, a major strength of this dissertation was its approach to investigating the relationship between empathy and aggressive behaviour. Informed by neurobiological and behavioural approaches, I employed a framework for investigating the correlates of aggressive behaviour which required the integration of several bodies of literature. This kind of approach should be employed in future investigations as it is more suited to articulating the complex web of relationships between correlates of aggressive behaviour. Additionally, this dissertation stresses the importance of a developmental approach to understanding behaviour, and therefore recruited both child and young adolescent samples. More investigations of this kind are necessary to strengthen the South African knowledge base and also refine the international knowledge base. This in turn should translate into more successful interventions

to reduce and prevent aggressive behaviour in (and outside) of South Africa. This dissertation therefore serves as an important step towards understanding the multiple correlates of aggressive behaviour in young people in South Africa.

REFERENCES

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms and profiles.* Burlington, VT: University of Vermont.

Ackerman, B. P. (1981). Young children's understanding of a speaker's intentional use of a false utterance. *Developmental Psychology, 17*(4), 472-480. doi:10.1037/0012-1649.17.4.472

Adar, J., & Stevens, M. (2000). Womens health. In A. Ntuli, N. Crisp, E. Clarke, & P. Barron (Eds.), *South African health review* (pp. 411–427). Durban: Health Systems Trust.

Ahmad, K., (2004). Violence prevention receives international attention. *Lancet, 363,* 220.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.

Akitsuki, Y., & Decety, J. (2009). Social context and perceived agency affects empathy for pain: an event-related fMRI investigation. *Neuroimage, 47(2),* 722-734. doi: 10.1016/j.neuroimage.2009.04.091

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology. A meta-analytic review. *Clinical Psychology Review, 30*, 217-237. doi: 10.1016/j.cpr2009.11.004

Allie, S. (1996). Gangsterism in our schools. *Eraser, 3,* 30-32.

Altbeker, A. (2007*). A country at war with itself: South Africa's crisis of crime.* Johannesburg: Jonathan Ball Publishers.

Amone-P'Olak, K., Burger, H., Huisman, M., Oldehinkel, A.J., & Ormel, J. (2011). Parental psychopathology and socioeconomic position predict adolescent offspring's mental health independently and do not interact: The TRAILS study. *Journal of Epidemiology and Community Health, 65*(1), 57-63. doi: 10.1136/jech.2009.092569

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology, 53,* 27-51. https://doi.org/10.1146/annurev.psych.53.100901.135231

Antonopolou, K.,Alexopoulos, D. A., & Maridaki-Kassotaki, K. (2012). Perceptions of father parenting style, empathy, and self-esteem among Greek preadolescents. *Marriage and Family Review, 48,* 293-309. doi: 10.1080/01494929.2012.665016

Arbuckle, J. L. (1997). *Amos user's guide.* Chicago: Small-Waters.

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*(4), 291-322. doi: 10.1037/1089-2680.8.4.291

Ataguba, J.E., Akazili, J., & McIntyre, D. (2011). Socioeconomic-related health inequality in South Africa: Evidence from general household surveys. *International Journal for Equity in Health*, 10, 1-10. doi: 10.1186/1475-9276-10-48

Attar, B. K., Guerra, N. G., & Tolan, P. H. (1994). Neighbourhood disadvantage, stressful life events, and adjustment in urban elementary-school children. *Journal of Clinical Child Psychology, 23,* 391-400.

Ayduk, O, Rodriguez, M. L., Mischel, W., Shoda, Y., & Wright, J. (2007). Verbal intelligence and self-regulatory competencies: Joint predictors of boys' aggression. *Journal of Research in Personality, 41,* 374-388. doi:10.1016/j.jrp.2006.04.008

Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Englewood Cliffs: Prentice-Hall.

Bandura, A. (1973). *Aggression: A social learning analysis*. New York: Holt.

Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.

Barbarin, O. A., Richter, L., & de Wet, T. (2001). Exposure to violence, coping resources, and psychological adjustment of South African children. *American Journal of Orthopsychiatry, 71*, 16-25.

Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*, 3296-3319.

Barber, B. K., & Olsen, J. (1997). Socialization in context: Connection, regulation, and autonomyin the family, school, and neighborhoodand with peers. Journal of Adolescent Research, 12(2), 287-315.

Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioural control and youth internalised and externalised behaviours. *Child Development, 65*, 1120-1136. doi: 10.2307/1131309

Barker, E.D., & Maughan, B. (2009). Differentiating early-onset persistent versus childhood-limited conduct problem youth. *American Journal of Psychiatry, 166,* 900-908. doi: 10.1176/appi.ajp.2009.08121770

Barnes, H., Wright, G., Noble, M., & Dawes, A. (2007). The South African index of multiple deprivation for children: census 2001. HSRC Press, Cape Town.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition, 21*, 37-46.

Baron-Cohen, S., O'Riordan, M., Stone, V. E., Jones, R., & Plaisted, K. (1999). Recognition of faux pas by normally developing children and children with Asperger syndrome or high-functioning autism. *Journal of Autism and Developmental Disorders, 29,* 407-418. doi:10.1023/A:1023035012436

Baron-Cohen, S., Richler, J., Bisarya, D., Gurunathan, N., & Wheelwright, S. (2003). The systemizing quotient: An investigation of adults with Asperger syndrome or high-functioning autism, and normal sex differences. *Philosophical Transaction of the Royal Society B, 358*, 361-374. doi: 10.1098/rstb.2002.1206

Barry, C. T., Frick, P. J., Grooms, T., McCoy, M. G., Ellis, M. L., & Loney, B. R. (2000). The importance of callous-unemotional traits for extending the concept of psychopathy to children. *Journal of Abnormal Psychology, 109*, 335-340.

Batson, C. D. (2009). These things called empathy: Eight related but distinct phenomena. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 3-15). Massachusetts: Massachusetts Institute of Technology Press.

Batson, C. D., Early, S., & Salvarani, G. (1997). Perspective taking: Imagining how another feels versus imagining how you would feel. *Personality and Social Psychology Bulletin, 23*, 751-758. https://doi.org/10.1177/0146167297237008

Baumeister, R. F. (1995). Transcendence, guilt, and self-control. *Behavioral and Brain Sciences, 18,* 122-123.

Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: an overview. *Psychological Inquiry, 7*(1), 1-15.

Baumrind, D. (1966). Effects of authoritative parental control on child behaviour. *Child Development, 37*, 887-997.

Baumrind, D. (1971). Current patterns of paternal authority. *Developmental Psychology Monographs, 4,* 1-103.

Belsky, J., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2007). For better and for worse: Differential susceptibility to environmental influences. *Current Direction in Psychological Science, 16*(6), 300-304.

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107,* 238-246.

Bernadett-Shapiro, S., Ehrensaft, D., & Shapiro, J. (1996). Father participation in childcare and the development of empathy in sons: an empirical study. *Family Therapy, 23,* 77-93.

Bibby, H., & McDonald, S. (2005). Theory of mind after traumatic brain injury. *Neuropsychologia, 43,* 99-114. doi:10.1016/j.neuropsychologia.2004.04.027

Blair, R. J. R. (2005). Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness and Cognition, 14,* 698-718. doi: 10.1016/j.concog.2005.06.004

Bonanno, G. A., Papa, A., Lalande, K., Westphal, M., & Coifman, K. (2004). The importance of being flexible: the ability to both enhance and suppress emotional expression predicts long-term adjustment. *Psychological Science, 15,* 482-487. doi: 10.111/j.0956-7976.2004.00705.x

Bongers, I. L., Koot, H. M., van der Ende, J., & Verhulst, F. (2003). The normative development of child and adolescent problem behaviour. *Journal of Abnormal Psychology, 112*(2), 179-192. doi: 10.1037//0021-843X.112.2.179

Bongers, I. L., Koot, H. M., van der Ende, J., & Verhulst, F. C. (2004). Developmental trajectories of externalising behaviors in childhood and adolescence. *Child Development, 75*(5), 1523-1537.

Booysen, F. (2001). The measurement of poverty. In D. Bradshaw & K. Steyn (Eds.), *Poverty and chronic diseases in South Africa: Technical report* (pp. 15-38). South Africa: Medical Research Council and World Health Organization.

Botvinick, M., Jha, A. P., Bylsma, L. M., Fabian, S. A., Solomon, P. E., & Prkachin, K. M. (2005). Viewing facial expressions of pain engages cortical areas involved in the direct experience of pain. *NeuroImage, 25,* 312-319. doi: 10.1016/j.neuroimage.2004.11.043

Bowlby, J. (1969). *Attachment and loss.* London: The Hogarth Press.

Bozicivic, L., De Pascalis, l. L. D., Schuitmaker, N., Tomlinson, M., & Cooper, P. J., & Murray, L. (2016). Longitudinal association between child emotion regulation and aggression, and the role of parenting: a comparison across these cultures. *Psychopathology, 49,* 228-235. doi: 10.1159/000447747

Bradley, S. J. (2000). *Affect regulation and the development of psychopathology.* New York: Guilford.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development, *Annual Review of Psychology, 53,* 371-399.

Bradley, R. H., Corwyn, R. F., McAdoo, H. P., & Coll, C. G. (2001). The home environments of children in the United States part I: variations by age, ethnicity and poverty status. *Child Development, 72,* 1844-1867.

Bridges, L. J., Denham, S. A., & Ganiban, J. M. (2004). Definitional issues in emotion regulation research. *Chid Development, 75,* 340-345.

Broidy, L. M., Tremblay, R. E., Brame, B., Fergusson, D., Horwood, J. L., Laird, R., ... Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviours and adolescent delinquency. A six-site, cross-national study. *Developmental Psychology, 39,* 222-245.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Brüne, M., & Brüne-Cohrs, U. (2006). Theory of mind—evolution, ontogeny, brain mechanisms and psychopathology. *Neuroscience and Biobehavioral Reviews, 30,* 437–455.

Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development,53,* 413-425.

Burger, J. (2009). Worrying trends: The official 2008/2009 South African crime statistics. *SA Crime Quarterly, 30,* 3-11.

Burke, J. D., Loeber, R., & Birmaher, B. (2002). Oppositional defiant disorder and conduct disorder: A review of the past 10 years, part II. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 1275-1293.

Burton, P. (2008). Merchants, skollies and stone. Experience of school violence in South Africa. *Monograph Series,* No. 4. Cape Town: Centre for Justice and Crime Prevention.

Burton, P., Leoschut, L., & Bonara, A. (2009). *Walking the tightrope: youth resilience to crime in South Africa,* Cape Town: Centre for Justice and Crime Prevention.

Buschgens, C. J. M., van Aken, M. A. G., Swinkels, S. H. N., Ormel., J., Verhulst, F. C., & Buitelaar, J. K. (2010). Externalizing behaviours in preadolescents: familial risk to externalizing behaviors and perceived parenting styles. *European Child and Adolescent Psychiatry, 19,* 567-575. doi: 10.1007/s00787-009-0086-8

Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: are the social consequences of emotion suppression culture-specific? *Emotion, 7,* 30-48. doi: 10.1037/1528-3542.7.1.30

Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Gariépy, J.-L. (1989). Growth and aggression: 1. Childhood to early adolescence. *Developmental Psychology, 25,* 320-330.

Campbell, S. B. (1995). Behaviour problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36,* 113-149. doi: 10.1111/j.1469-7610.1995.tb01657.x

Card, N. Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*(5), 1185-1229. doi: 10.1111/j.1467-8624.2008.01184.X

Carstensen, L. L., Fung, H., & Charles, S. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion, 27,* 103-123. doi: 10.1023/A:1024569803230

Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: what have we learned about cognitive development? *Trends in Cognitive Science, 9,*

104-110. doi: 10.1016/j.tics.2005.01.011
Christopher, A. J. (2001). Urban segregation in post-apartheid South Africa. *Urban Studies, 38*, 449-466.
Christov-Moore, L., Simpson, EA, Coudé, G., Grigaityte, K., Iocoboni, M., & Ferarri, P. F. (2014). Empathy: Gender effects in brain and behaviour. *Neuroscience and Biobehavioral Reviews, 46*, 604-627.
Clerkin, S. M., Marks, D. J., Policaro, K. L., & Halperin, J. (2007). Psychometric properties of the Alababma Parenting Questionnaire – Presechool Revision. *Journal of Clinical Child and Adolescent Psychology, 36*(1), 19-28. doi: 10.1080/15374410709336565
Cluver, L., Gardner, F., & Operario, D. (2007). Psychological distress amongst AIDS-orphaned children in urban South Africa. *Journal of Child Psychology and Psychiatry, 48*, 755-763. doi: 10.1111/j.1469-7610.2007.01757.x
Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology, 32*, 988-998.
Cohen, D., & Strayer, J. (2006). Empathy in conduct-disordered and comparison youth. *Developmental Psychology, 32*(6), 988-998. doi: 10.1037/0012-1649.32.6.988
Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behaviour. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 779-862). Toronto: Wiley.
Cole, P. M. (2014). Moving ahead in the study of the development of emotion regulation. *International Journal of Behavioral Development, 38*, 203-207. https://doi.org/10.1177/0165025414522170
Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. *Child Development, 75*, 31-333.
Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94* (Suppl.), 95-120.
Conway, A. R. A., Kane, M. J., Bunting, M. F., Hambrick, D. Z., Wilhelm, O., & Engle, R. W. (2005). Working memory span tasks: A methodological review and user's guide. *Psychonomic Bulletin and Review, 12*(5), 769-786. doi: 10.3758/BF03196772
Cooper, S., Lund, C., & Kakuma, R. (2012). The measurement of poverty in psychiatric epidemiology in LMICs: critical review and recommendations. *Social Psychiatry and Psychiatric Epidemiology, 47*, 1499-1516. doi: 10.1007/s00127-011-0457-6
Costello, E.J., Compton, S.N., Keeler, G., & Angold, A. (2003). Relationships between poverty and psychopathology - A natural experiment. *Journal of the American Medical Association, 290*(15), 2023-2029. doi: 10.1001/jama.290.15.2023
Cox, M. J., Mills-Koonce, R., Propper, C., & Gariépy, J. L. (2010). Systems theory and cascades in developmental psychopathology. *Development and Psychopathology, 22*, 497-506. doi:10.1017/S095457941000000234
Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology, 7*, 313-322. doi: 10.1017/S09544579400006520
Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development, 67*, 993-1002.

Dadds, M. R. (1995). *Families, children, and the development of dysfunction*. New York: Sage.

Dadds, M. R., Hunter, K., Hawes, D. J., Frost, A. D. J., Vassallo, S., Bunn, P., …El Masry, Y. (2008). A measure of cognitive and affective empathy in children using parent ratings. *Child Psychiatry and Human Development, 39,* 111-122. doi: 10.1007/s10578-007-0075-4

Davidson, R. J., Putnam, K. M., & Larson, C. L. (2000). Dysfunction in the neural circuitry of emotion regulation. A possible prelude to violence. *Science, 289,* 591-595.

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalogue of Selected Documents in Psychology, 10,* 85.

Davis, M. H. (1983). Measuring individual differences in Empathy. Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44,* 113-126.

Dawes, A., & Donald, D. (2000). Improving children's chances: developmental theory and effective interventions in community contexts. In D. Donald, A. Dawes, & J. Louw (Eds.), *Addressing Childhood Adversity* (pp. 1-25). Cape Town: David Philip.

Dawes, A., Tredoux, C., & Feinstein, A. (1989). Political violence in South Africa: Some effects on children of the violent destruction of their community. *International Journal of Mental Health, 18,* 16-43.

Dearing, K. F., Hubbard, J. A., Ramsden, S. R., Parker, E. H., Relyea, N., Smithmyer, C. M., & Flanagan, K. D. (2002). Children's self reports about anger regulation: Direct and indirect links to social preference and aggression. *Merril-Palmer Quarterly, 48,* 308-336.

de Castro, B. O., Merk, W., Koops, W., Veerman, J. W., & Bosch, J. D. (2005). Emotions in social information processing and their relations with reactive and proactive aggression in referred aggressive boys. *Journal of Clinical Child and Adolescent Psychology, 34,* 105-116. doi: 10.1207/s15374424jccp3401_10

Decety, J. (2011). Dissecting the neural mechanisms mediating empathy. *Emotion Review, 3,* 92-108. doi: 10.1177/1754073910374662

Decety, J., & Cowell, J. (2014). The complex relation between morality and reason. *Trends in Cognitive Sciences, 18,* 337-339. doi: 10.1177/17455691614545130

Decety, J., & Jackson, P. L. (2004). A social-neuroscience perspective on empathy. *Current Directions in Psychological Science, 15,* 54-58. doi: 10.1177/1534582304267187

Decety, J., & Lamm, C. (2006). Human empathy through the lens of social neuroscience. *The Scientific World Journal, 6,* 1146-1163. doi: 10.1100/tsw.2006.221

Decety, J., & Meyer, M. (2008). From emotion resonance to empathic understanding: A social developmental neuroscience account. *Development and Psychopathology, 20,* 1053-1080. https://doi.org/10.1017/S0954579408000503

Decety, J., Michalska, K. J., & Akitsuki, Y. (2008). Who caused the pain? A functional MRI investigation of empathy and intentionality in children. *Neuropsychologia, 46,* 2607-2614. doi:10.1016/j.neuropsychologia.2008.05.026

Decety, J., & Moriguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: Implications for intervention across different clinical conditions. *BioPsychoSocial Medicine, 1,* 22-65. doi: 10.1186/1751-0759-1-22

Decety, J., Skelly, L. R., & Kiehl, K. A. (2013). Brain response to empathy-eliciting scenarios involving pain in incarcerated individuals with psychopathy. *JAMA Psychiatry, 70*(6), 638-645. doi: 10.1001/jamapsychiatry.2013.27

de Garmo, D. S., Forgatch, M. S., & Martinez, C. R. (1999). Parenting of divorced mothers as a link between social status and boy's academic outcomes: unpacking the effects of socioeconomic status. *Child Development, 70,* 1231-1245.

de Kemp, R. A. T., Overbeek, G., de Wied, M., Engels, R. C. M. E., & Scholte, R. H. J. (2007). Early adolescent empathy, parental support and antisocial behaviour. *The Journal of Genetic Psychology, 168,* 5-18.

DeKlyen, M., & Greenberg, M. T. (2008). Attachment and psychopathology in childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical applications* (2nd ed., pp. 637-665). New York: Guilford.

Demosthenous, H. T., Bouhours, T., Demosthenous, C. M. (2002). Socioeconomic status and youth aggression in Australia. *Youth Studies Australia, 21*, 11-15.

Dempsey, A. G., Sulkowski, M. L., Dempsey J., & Storch, E. A. (2011). Has cyber technology produced a new group of peer aggressors? *Cyberpsychology, Behavior, and Social Networking, 14*(5), 297-302. doi: 10.1089/cyber.2010.0108

de Waal, F. B. M. (2008). Putting the altruism back into altruism: The evolution of empathy. Annual Review of Psychology, 59, 279-300. doi: 10.1146/annurev.psych.59.103006.093625

de Wied, M., Goudena, P. P., & Matthys, W. (2005). Empathy in boys with disruptive behavior disorders. *Journal of Child Psychology and Psychiatry, 46,* 867-880. doi: 10.1111/j.1469-7610.2004.00389.x

Douglas-Hamilton, D. (1995). *Warriors of the ghetto: Ganging as a rite of passage.* Unpublished Honours thesis, University of Cape Town, South Africa.

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*, 1146-1158.

Dodge, K. A., Malone, P. S., & Greenberg, M. T. (2008) Testing an idealized dynamic cascade model of the development of serious violence in adolescence. *Child Development, 79,* 1907-1927.

Dodge, K.A., Pettit, G.S., & Bates, J.E. (1994). Socialization mediators of the relation between socioeconomic-status and child conduct problems. *Child Development, 65*(2), 649-665.

Dowdney, L. (2005). *Neither War Nor Peace: International Comparisons Of Children And Youth In Organised Armed Violence*. Rio de Janeiro: Viva Rio/ISER/ IANSA.

Ducharme, S., Hudziak, J. J., Botteron, K. N., Ganjavi, H., Lepage, C., Collins, D. L., … & the Brain Development Cooperative Group. (2011). Right anterior cingulate cortical thickness and bilateral striatal volume correlate with child behavior checklist aggressive behavior scores in healthy children. *Biological Psychiatry, 70,* 283-290. http://dx.doi.org/10.1016/j.biopsych.2011.03.015

Eagly, A. H., & Steffen, V. J. (1986). Gender and aggressive behaviour: A meta-analytical review of the social psychological literature. *Psychological Bulletin, 100,* 309-330.

Eccles, J. S., Early, D., Fraser, K., Belansky, E.,& McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research, 12*, 263-286

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51,* 665-697.

Eisenberg, N., Cumberland, A., Guthrie, I. K., Murphy, B. C., & Shepard, S. A. (2005). Age changes in prosocial responding and moral reasoning in adolescence and early childhood. *Journal of Research on Adolescence, 15,* 235-260. Doi: 10.1111/j.1532-7795.2005.00095.x

Eisenberg, N., & Eggum, N. D. (2009). Empathic Responding: Sympathy and personal distress. In J. Decety, & W. Ickes. *The Social Neuroscience of Empathy* (pp. 71-84). Massachusetts Institute of Technology Press: Massachusetts.

Eisenberg, N., Eggum, N. D., & di Giunta, L. (2010). Empathy-related responding: Associations with prosocial behaviour, aggression, and intergroup relations. *Social Issues and Policy Review, 4*(1), 143-180. doi: 10,1111/j.1751.2409.2010.01020.x

Eisenberg, N., & Fabes, R. A. (1990). Empathy: conceptualization, measurement, and relation to prosocial behaviour. *Motivation and Emotion, 14,* 131-149.

Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: Their role in predicting quality of social functioning. *Journal of Personality and Social Psychology, 78,* 136-157.

Eisenberg, N., Fabes, R. A., Murphy, B. Karbon, M., Smith, M., & Maszk, P. (1996). The relations of children's dispositional empathy-related responding to their emotionality, regulation, and social functioning. *Developmental Psychology, 32,* 195-209.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial behaviour. In Eisenberg, N., Damon, W., & Lerner, R. M. (Eds.), *Handbook of child psychology: Volume 3. Social, emotional, and personality development* (6th ed., pp. 646-718). New York: Wiley.

Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin, 94*(1), 100.

Eisenberg, N., & Miller, P.A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101*(1), 91-119.

Eggum, N. D., Eisenberg, N., Kao, K., Spinrad, T. L., Bolnick, R., Hofer, C, … Fabricius, W. V. (2011). Emotion understanding, theory of mind, and prosocial orientations: Relations over time in early childhood. *Journal of Positive Psychology, 6*(1), 4-16. doi: 10.1080/17439760.20100536776

Elgar, F. J., Waschbusch, D. A., Dadds, M. R., & Sigvaldason, N. (2007). Development and validation of a Short Form of the Alabama Parenting Questionnaire. *Journal of Child and Family Studies, 16,* 243-259. doi: 10.1007/s10826-006-9082-5

Elder, G. H., Eccles, J. S., Ardelt, M., & Lord, S. (1995). Inner-city parents under economic pressure: Perspectives on the strategies of parenting. *Journal of Marriage and Family, 57,* 771-784. doi: 10.2307/353931

Elsenberg-Berg, N., & Hand, M. (1979). The relationship of preschooler's reasoning about prosocial moral conflicts to prosocial behaviour. *Child Development, 50,* 356-363.

Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Psychometric properties of the Alabama Parenting Questionnaire, *Journal of Child and Family Studies, 15*(5), 597-616. doi: 10.1007/s10826-006-9036-y

Eysenck, S. B., & Eysenck, H. J. (1978). Impulsiveness and venturesomeness: Their position in a dimensional system of personality description. *Psychological Reports, 43,* 1247-1255.

Farrington, D. P. (1986). Age and crime. *Crime and Justice, 7,* 189-250.

Farrington, D. P. (1989). Early predictors of adolescent aggression and adult violence. *Violence and Victims, 4,* 79-100.

Farrington, D. P., Loeber, R., Yin, Y., & Anderson, S. J. (2003). Are within-individual causes of delinquency the same as between-individual causes. *Criminal Behaviour and Mental Health, 12,* 53-68. doi: 10.1002/cbm.486

Fatima, S., & Sheikh, H. (2014). Socioeconomic status and adolescent aggression: The role of executive functioning as a mediator. *American Journal of Psychology, 127*(4), 419-430.

Fearon, R. P., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., Lapsley, A. M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalising behaviour: A meta-analytic study. *Child Development, 81,* 435-456.

Fearon, R. P., & Belsky, J. (2011). Infant-mother attachment and the growth of externalizing problems across the primary-school years. *Journal of Child Psychology and Psychiatry, 52,* 782-791. doi: 10.1111/j.1469-7910.2010.02350.x

Ferguson, C. J., San Miguel, C., & Hartley, R. D. (2009). A multivariate analysis of youth violence and aggression: The influence of family, peers, depression, and media violence. *The Journal of Pediatrics, 155*(6), 904–908.e3. Doi: http://dx.doi.org/10.1016/j.jpeds.2009.06.021

Ferret, H. (2011). *The adaptation and norming of selected psychometric tests for 12-15-year-old urbanized Western Cape adolescents.* Unpublished Doctoral thesis, University of Stellenbosch, South Africa.

Feshbach, N. D. (1969). Sex differences in children's modes of aggressive responses toward outsiders. *Merrill-Palmer Quarterly, 15,* 249-258.

Feshbach, N. D. (1978). Studies of empathic behaviour in children. In B. A. Maher (Ed.), *Progress in experimental personality research* (Vol. 8, pp. 1-47). New York: Academic Press.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: SAGE Publications Ltd.

Finzi, R., Cohen, O., Sapir, Y., & Wiseman, A. (2000). Attachment styles in maltreated children: A comparative study. *Child Psychiatry and Human Development, 31*(2), 113 - 128.

Finzi-Dottan, R. Manor, I., & Tyano, S. (2006). ADHD, temperament, and parental style as predictors of the child's attachment patterns. *Child Psychiatry and Human Development, 37,* 103-114. doi: 10.1007/s10578-006-0024-7

Fischer, S., & Munsch, S. (2012). Self-regulation in eating disorders and obesity – Implications for treatment. *Verhaltenstheraphie, 22,* 158-164. doi: 10.1159/000341540

Fite, P. J., Colder, C. R., & Pelham Jr, W. E. (2006). A factor analytic approach to distinguish

pure and co-occurring dimensions of proactive and reactive aggression. *Journal of Clinical Child and Adolescent Psychology, 35*, 578-582. http://dx.doi.org/10.1207/s15374424jccp3504_9

Flannery, D., Wester, K. L., & Singer, M. (2004). Impact of exposure to violence in school on child and adolescent mental health and behaviour. *Journal of Community Psychology, 32*, 559-573. doi: 10.1002/jcop.20019

Foster, D. (2012). Gender, class, 'race' and violence. In C. L. Ward, A. Van der Merwe, & A. Dawes (Eds.), *Youth violence: Sources and solutions in South Africa*, (pp. 21–51). Cape Town: UCT Press.

Fowler, P. J., Tompsett, C. J., Braciszewki, J. M., Jacques-Tiura, A. J., & Baltes, B. B. (2009). Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology, 21*, 227-259. doi: 10.1017/S0954579409000256

Foxcroft, C. D., & Aston, S. (2006). Critically examining language bias in the South African adaptation of the WAIS-III. *South African Journal of Industrial Psychology, 32*(4), 97-102. doi: 10.4102/sajip.v32i4.243

Frick, P. J. (2009). Extending the construct of psychopathy to youth: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *The Canadian Journal of Psychiatry, 54*(12), 803-812.

Frick, P. J., & Cornell, A. H., Barry, C. T., Bodin, S. D., & Dane, H. E. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology, 31*, 457-470.

Frick, P. J., & Morris, A. S. (2004). Temperament and developmental pathways to conduct problems. *Journal of Clinical Child and Adolescent Psychology, 33*, 54-68. http://dx.doi.org/10.1207/S15374424JCCP3301_6

Frick, P. J., Stickle, T. R., Dandreaux, D. M., Farrell, J. M., & Kimonis, E. R. (2005). Callous- unemotional traits in predicting severity and stability of conduct problems and delinquency. *Journal of Abnormal Child Psychology, 33*, 471-487. doi: 10.1007/s10648-005-5728-9

Frick, P. J., & Viding, E. (2009). Antisocial behaviour from a developmental psychopathology perspective. *Developmental Psychopathology, 21*, 1111-1131. doi: 10.1017/S09545794009990071

Frick, P. J., & White, S. F. (2008). The importance of callous-unemotional traits for developmental models of aggressive and antisocial behaviour. *Journal of Child Psychology and Psychiatry, 49*, 359-375. doi: 10.1111/j.1469-7610.2007.01862.x

Funk, J. B., Baldacci, H. B., Pasold, T., & Baumgardner, J. (2004). Violence exposure in real life, video games, television, movies, and the internet: Is there desensitization? *Journal of Adolescence, 27*, 23-39. https://doi.org/10.1016/j.adolescence. 2003.10.005

Galambos, N. L., Barker, E. T., & Almeida, D. M. (2003). Parents do matter: Trajectories of change in externalising and internalising problems in early adolescence. *Child Development, 74*, 578-594.

Gallese, V., Fadiga, L., Fogassi, L., & Rizzolatti, G. (1996). Action recognition in the premotor cortex. *Brain, 119*, 593-609.

Gallese, V., Keysers, C., & Rizzolatti, G. (2004). A unifying view of the basis of social cognition. *Trends in Cognitive Sciences, 8,* 396-403. http://dx.doi.org/10.1016/j.tics.2004.07.002

Garabarino, J. (1999). *Lost Boys: Why our sons turn violent and how we can save them*. New York: Free Press.

Garaigordobil, M. (2009). A comparative analysis of empathy in childhood and adolescence: Gender differences and associated socio-emotional variables. *International Journal of Psychology and Psychological Therapy, 9,* 217-235.

Gaylard, E. M. (2005). *Cross-cultural differences in IQ test performance: extension of existing normative database on WAIS-III test performance*. Unpublished Master's thesis. Grahamstown: Psychology Department, Rhodes University.

Gerdes, K. E., Segal, E. A., & Lietz, C. A. (2010). Conceptualising and measuring empathy. *British Journal of Social Work, 40,* 2326-2343. doi: 10.1093/bjsw/bcq048

Geyer, S., Hemström, O., Peter, R., & Vågerö, D. (2006). Education, income, and occupational class cannot be used interchangeably in social epidemiology. Empirical evidence against a common practice. *Journal of Epidemiology and Community Health, 60,* 804-810. http://dx.doi.org/10.1136/jech.2005.041319

Glaser, C. (2000). *Bo-tsotsi: The youth gangs of Soweto: 1935-1976*. Portsmouth: Heineman.

Goldman, A. I., & Sripada, C. S. (2005). Simulationist models of face-based emotion recognition. *Cognition, 94,* 193-213. https://doi.org/10.1016/j.cognition.2004.01.005

Gonzalez, K. P., Field, T. M., Lasko, D., LaGreca, A., & Lahey, B. (1996). Social anxiety and aggression in behaviourally disordered children. *Early Development and Care, 121*, 1-8. http://dx.doi.org/10.1080/0300443961210101

Gonzalez-Gadea, M. L., Herrera, E., Parra, M., Mendez, P. G., Baez, S., Mores, F., … Ibanez, A. (2014). Emotion recognition and cognitive empathy deficits in adolescent offenders revealed by context-sensitive tasks. *Frontiers in Human Neuroscience, 8*, 1-11. doi: 10.3389/fnhum.2014.00850

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology, 10*(1), 101-116.

Granic, I., Meusel, L-A., Lamm, C., Woltering, S., & Lewis, M. D. (2012). Emotion regulation in children with behaviour problems: Linking behavioural and brain processes. *Development and Psychopathology, 24,* 1019-1029. doi: 10.1017/S09545791200051X.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348-362. doi: 10.1037/0022-3514.85.2.348

Grounds, A., & Jamieson, R. (2003). No sense of an ending: Researching the experience of imprisonment and release among Republican ex-prisoners. *Theoretical Criminology, 7,* 347-362.

Grusec, J. E. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology, 28*(5), 776-786.

Guo, G., & Harris, K. M. (2000). The mechanisms mediating the effect of poverty of children's intellectual development. *Demography, 37*(4), 431-447.

Guo, X., Zheng, L., Wang, H., Zuu, L., Li, J., Wang, G., Dienes, & Yang, Z. (2013). Exposure to violence reduces empathetic responses to other's pain, *Brain and Cognition, 82*, 187-191. https://doi.org/10.1016/j.bandc.2013.04.005

Hackman, D. A., & Farah, M. J. (2009). Socioeconomic status and the developing brain. *Trends in Cognitive Sciences, 13(*2): 65-73. doi:10.1016/j.tics.2008.11.003

Hackman, D. A., Gallop, R., Evans, G. W., & Farah, M. J. (2015). Socioeconomic status and executive function: developmental trajectories and mediation. *Developmental Science, 18*(5) 686-702. doi: 10.1111/desc.12246

Haefele, B. W. (1998). Gangsterism in the Western Cape: Who are the role-players? *Crime and Conflict, 14*, 19-22.

Hagedorn, J. M. (2005). The global impact of gangs. *Journal of Contemporary Criminal Justice, 21*(2), 153-169. https://doi.org/10.1177/1043986204273390

Happé, F. (1994). An advanced test of theory of mind: Understanding of story characters' thoughts and feelings by autistic, mentally handicapped, and normal children and adults. *Journal of Autism and Developmental Disorders, 24*, 129-154.

Happé, F. (1995). The role of age and verbal ability in the theory of mind task performance of subjects with autism. *Child Development, 66*, 843-855.

Harris, J. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review, 102*, 458-489.

Harris, J. (2000). Socialization, personality development, and child's environments: Comment on Vandell (2000). *Developmental Psychology, 36*, 711-723.

Hart, C. H., Newell, L. D., & Olsen, S. F. (2003). Parenting skills and social-communicative competence in childhood. In J. O. Greene & B. R. Burleson (Eds.), *Handbook of communication and social interaction skills* (pp. 753-797). Mahwah, NJ: Lawrence Erlbaum Associates.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). Emotional contagion. New York: Cambridge University Press.

Hawes, D., & Dadds, M. (2006). Assessing parenting practices through parent-report and direct observation during parent training. *Journal of Child and Family Studies, 15*(5), 555-568. doi: 10.1007/s10826-006-9029-x

Hawk, S. T.., Keijsers, L., Branje, S. J. T., van der Graaff, J., de Wied, M., & Meeus, W. H. J. (2013). Examining the Interpersonal Reactivity Index (IRI) among early and late adolescents and their mothers. *Journal of Personality Assessment, 95*, 96-106. doi: 10.1080/00223891.2012.696080

Hay, D. F., Mundy, L., and Roberts S., et al. (2011). Known risk factors for violence predict 12-month-old infants' aggressiveness with peers. *Psychological Science, 22*, 1205-1211. doi: 10.1177/0956797611419303

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52,* 511-524.

Heinrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences,* 33, 83-135. doi: 10.1017/S01040525X0999152X

Hinshaw, S. P. (1992). Externalizing behaviour problems and academic underachievement in childhood and adolescence: causal relationships and underlying mechanisms. *Psychological Bulletin, 111,* 127-155.

Hoeve, M., Semon Dubas, J., Eichelsheim, V. I., van der Laan, P. H., Smeenk, N., & Gerris, J. R. M. (2009). The relationship between parenting and delinquency: A meta-analysis. *Journal of Abnormal Child Psychology, 37,* 749-775. doi: 10.1007/S10802-009-9310-8

Hoffman, M. L. (1977). Sex differences in empathy and related behaviors. *Psychological Bulletin, 84*, 712–722.

Hoffman, M. L. (1984). The contribution of empathy to justice and moral judgment. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 47-80). New York: Cambridge University Press.

Hogan, R. (1969). Development of an empathy scale. *Journal of Consulting and Clinical Psychology, 33*, 307-316.

Holden, G. W. (1997). *Parents and the dynamics of child rearing*. Boulder: Westview Press.

Holt, S., Buckley, H., & Whelan, S. (2008). The impact of exposure to domestic violence on children and young people: A review of the literature. *Child Abuse and Neglect, 32*, 797-810. doi:10.1016/j.chiabu.2008.02.004

Hoogenhout, M. & Malcolm-Smith, S. (2014). Theory of mind in autism spectrum disorders: Does DSM classification predict development? *Research in Autism Spectrum Disorders, 8,* 597-607. https://doi.org/10.1016/j.rasd.2014.02.005

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*, 53-60.

Hu, L. T. & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling, 6* (1), 1-55.

Ickes, W. (2003). *Everyday mind reading: Understanding what others think and feel.* Amherst, NY. Prometheus Books.

Ivanova, M. Y., Achenbach, T. M., Dumenci, L., Rescorla, L. A., Almqvist, F., Weintraub, S., …Verhulst, F. C. (2007). Testing the 8-syndrome structure of the Child Behavior Checklist in 30 societies. *Journal of Clinical Child and Adolescent Psychology, 36*, 405-417.

Izard, C. E., King, K. A., Trentacosta, C. J., Morgan, J. K., Laurenceau, J., Krauthamer-Ewing, E. S., & Finlon, K. J. (2008).Accelerating the development of emotion competence in Head Start children: Effects on adaptive and maladaptive behaviour. *Development and Psychopathology, 20*, 369-397. doi: 10.1017/S095479408000175

Jackson, P. L., Brunet, E., Meltzoff, A. N., & Decety, J. (2006). Empathy examined through the neural mechanisms involved in imagining how I feel versus how you feel pain. *Neuropsychologia, 44*, 752-761. doi:10.1016/j.neuropsychologia.2005.07.015

Jackson, P. L., Meltzoff, A. N., & Decety, J. (2005). How do we perceive the pain of others: A window into the neural processes involved in empathy. *NeuroImage, 24*, 771-779. https://doi.org/10.1016/j.neuroimage.2004.09.006

Jackson, P. L., Rainville, P., & Decety, J. (2006). To what extent do we share the pain of others? Insight from the neural bases of pain empathy. *Pain, 125*, 5-9. doi: 10.1016/j.pain.2006.09.013

Jefthas, D., & Artz, L. (2007). Youth violence: A gendered perspective. In P. Burton (Ed.), *Someone stole my smile: An exploration into the causes of youth violence in South Africa* (pp. 37-55). Cape Town: Centre for Justice and Crime Prevention.

Joe, K. A., & Chesney-Lind, M. (1995). 'Just every mother's angel': An analysis of gender and ethnic variations in youth gang membership. *Gender and Society, 9*(4), 408-431.

Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior, 9,* 441–476. doi: 10.1016/j.avb.2003.03.001

Jolliffe, D., & Farrington, D. P. (2007). Examining the relationship between low empathy and self-reported offending. *Legal and Criminological Psychology, 12,* 265–286. doi: 10.1348/135532506X147413

Joliffe, D., & Murray, J. (2012). Lack of empathy and offending: Implications for toorrow's research and practice. In R. Loeber, & B. C. Welsh (Eds.), *The future of criminology* (pp. 62-69). Oxford: Oxford University Press.

Juang, P., & Silbereisen, R. K. (1999). The relationship between adolescent academic capability beliefs, parenting and school grades. *Journal of Adolescence, 25,* 3-18. doi: 10.1006/jado.2001.0445

Kalil, A., & DeLeire, T. (Eds.). (2004). *Family investments in children's potential*. Mahwah, NJ: Lawrence Erlbaum.

Kalliopuska, M. (1984). Relation between children's and parent's empathy. *Psychological Reports, 54,* 295-299.

Kane-Berman, J. S. & Cronjé, F. (2007). *South Africa Survey, 2006/2007*. Johannesburg: South African Institute of Race Relations.

Keenan, K., & Shaw, D. (1997). Developmental and social influences on young girls' early problem behaviour. *Psychological Bulletin, 121*, 95-113.

Kinnes, I. (1995, May). *Crime on the Cape Flats.* Paper presented at the Western Cape Anti-Crime Conference, Bellville, South Africa.

Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York: The Guilford Press.

Klein, K. J. K., & Hodges, S. D. (2001). Gender differences, motivation, and empathic accuracy: When it pays to understand. *Personality and Social Psychology Bulletin, 27,* 720-730.

Kohut, H. (1971). *The analysis of self*. New York: International Universities Press.

Koole, S. L. (2009). The psychology of emotion regulation: An integrative review. *Cognition and Emotion, 23*, 4-41. doi: 10.1080/02699930802619031

Kopp, C. B. (1989). Regulation of distress and negative emotions: A developmental view. *Developmental Psychology, 25,* 343-354.

Koshanska, G., & Kim, S. (2012). Toward a new understanding of legacy of early attachments for future antisocial trajectories: Evidence from two longitudinal studies. *Development and Psychopathology, 24,* 783-806. doi: 10.1017/S095479412000375

Kraus, M.W., & Keltner, D. (2009). Signs of socioeconomic status: A thin-slicing approach. *Psychological Science, 20*, 99-106.

Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (2002). *World Report on Violence and Health.* Geneva: World Health Organization.

Lahey, B. B., Schwab-Stone, M., Goodman, S. H., Waldman, I. D., Canino, G., Rathouz, P. J., ... Jensen, P. S. (2000). Age and gender differences in oppositional behaviour and conduct problems: A cross-sectional household study of middle childhood and

adolescence. *Journal of Abnormal Psychology, 109*, 488-503. doi: 10.1037?0021-843X.109.3.488

Lamm, C., Batson, C. D., & Decety, J. (2006). The neural substrates of human empathy: Effects of perspective-taking and cognitive appraisal. *Journal of Cognitive Neurosience, 19*, 1-17.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods, 9*(2), 202-220.

Lansford, J.E., Skinner, A.T., Sorbring, E., Giunta, L.D., Deater-Deckard, K., Dodge, K. … & Chang, L. (2012). Boys and girls relational and physical aggression in nine countries. *Aggressive Behaviour, 38*, 298-308. doi: 10.1002/ab.21433

Leggett, T. (2005). Terugskiet: growing up on the street corners of Manenberg, South Africa. Pretoria: Institute for Security Studies.

Leibrandt, M., Finn, A., & Woolard, I. (2012). Describing and decomposing post-apartheid income inequality in South Africa. *Development Southern Africa, 29*, 19-34. http://dx.doi.org/10.1080/0376835X.2012.645.639

Lennon, R., & Eisenberg, N. (1987). Gender and age differences in empathy and sympathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 195-217). New York: Cambridge University Press.

Lenroot, R. K., & Giedd, J. N. (2006). Brain development in children and adolescents: Insights from anatomical magnetic resonance imaging, *Neuroscience and Biobehavioral Reviews, 30*, 718-729. doi:10.1016/j.neubiorev.2006.06.001

Leoschut, L. (2008). *School violence: What makes learners vulnerable?* Cape Town: Centre for Justice and Crime Prevention.

Letourneau, N. L., Duffet-Leger, L., Levac, L., Watson, B., & Yung-Morris, C. (2013). Socioeconomic status and child development: A meta-analysis. *Journal of Emotional and Behavioral Disorders, 21*(3), 2211-2247. doi: 10.1177/1063426611421007

Lewis, M. D., Granic, I., & Lamm, C. (2006). Behavioral differences in aggressive children linked with neural mechanisms of emotion regulation. *Annals of the New York Academy of Science, 1094*, 164-177. doi: 10.1196/annals.1376.017

Lewis, M. D., Lamm, C., Segalowitz, S. J., Stieben, J., & Zelazo, P. D. (2006). Neuropsychological correlates of emotion regulation in children and adolescents. *Journal of Cognitive Neuroscience, 18*, 430-443. doi: 10.1162/089892906775990633

Lipps, T. (1903). Einfülung, inner Nachahmung, und Organ-empfindugen. *Archiv fur die Gesamte Psychologie, 1*, 185-204.

Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion regulation moderates the association between empathy and prosocial behaviour. *PLoSONE, 9*(5): e960555. doi: 10.1371/journal.pone.009655596555

Loeber, R., Burke, J. D., & Pardini, D. A. (2009). Development and aetiology of disruptive and delinquent behaviour. *Annual Review of Clinical Psychology, 5*, 291-310. doi: 10.1146/annurev.clinpsy.032408.153631

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. *Crime and Justice, 7*, 29-149.

Loeber, R., & Stouthamer-Loeber, M. (1998). Development of juvenile aggression and

violence: Some common misconceptions and controversies. *American Psychologist, 53,* 242-259.

Lovett, B. J., & Sheffield, R. A. (2007). Affective empathy deficits in aggressive children and adolescents: A critical review. *Clinical Psychology Review, 27,* 1-13. doi: 10.1016/j.cpr.2006.03.003

Lynam, D., Moffitt, T. E., & Stouthamer-Loeber, M. (1993). Explaining the relation between intelligence and delinquency: class, race, test motivation, school failure, or self-control? *Journal of Abnormal Psychology, 102,* 552.

Lynn, R., & Vanhanen, T. (2012). National IQs: A review of their educational, cognitive, economic, political, demographic, sociological, epidemiological, geographic and climatic correlates. *Intelligence, 40*(2), 226-234. doi: 10.1016/j.intell.2011.11.004

Macaskill, A., Maltby, J., & Day, L. (2002). Forgiveness of self and others and emotional empathy. *The Journal of Social Psychology, 142,* 663-665. http://dx.doi.org/10.1080/00224540209603925

Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen (Ed.), *Handbook of child psychology: Socialization, personality and social development* (pp. 1-101). New York: Wiley.

MacGowan, M. J. (1999). Assessment of childhood aggression and youth violence. In J. M. Jenson, & M. O. Howard, *Youth Violence: Current research and recent practice innovations* (pp. 43-84). Washington, DC: NASW Press.

MacQuiddy, S. L., Maise, S. J., & Hamilton, S. B. (1987). Empathy and affective perspective-taking skills in parent-identified conduct-disordered boys. *Journal of Clinical Child Psychology, 16,* 260-268.

Madalane, M. S. (2014). *Properties of the Alabama Parenting Questionnaire in an isiXhosa-speaking sample.* Unpublished Master's dissertation, University of Cape Town, South Africa.

Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95-124). Norwood: Ablex.

Malcolm-Smith, S., Woolley, D., & Ward, C. L. (2015). Examining empathy and its Association with aggression in young Western Cape children. *Journal of Child and Adolescent Mental Health, 27*(2), 135-147. doi: 10.2989/17280583.2015.1085386

Mandisa, T. (2009). Home and family circumstances of young offenders: an examination of social workers' views, *British Journal of Community Justice, 5*, 63-80.

Mar, R. A. (2011). Deconstructing empathy. *Emotion Review, 3*(1), 113-114. doi: 10.1177/1754073910384158

Masten, A. S., & Cicchetti, D. (2010). Developmental cascades. *Development and Psychopathology, 22,* 491-495. doi:10.1017/S0954579410000222

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53,* 185-204.

McLoyd, V., & Shanahan, M. (1993). Poverty, parenting, and children's mental health. *American Sociological Review, 58,* 351-366.

Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality, 40,* 525-543.

Mendelson, T., Kubzansky, L. D., Datta, G. D., & Buka, S. L.(2008). Relation of female ender and low socioeconoic status to internalizing symptoms among adolescents: A case of double jeopary? *Social Science and Medicine, 66,* 1284-1296. doi: 10.1016/j.socscimed.2007.11.033

Mikulincer, M., Florian, V., & Tolmacz, R. (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personal and Social Psychology, 58,* 273-280.

Miller, P. A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/ antisocial behavior. *Psychological Bulletin, 103,* 324-344.

Minio-Paluello, I., Baron-Cohen, S., Avenanti, A., Walsh, V., & Aglioti, S.M. (2009). Absence of embodied empathy during pain observation in Asperger Syndrome. *Biological Psychiatry, 65,* 55-62. doi:10.1016/j.biopsych.2008.08.006

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behaviour – A developmental taxonomy. *Psychological Review, 100,* 674-701.

Moffit, T. E. (2006). Life course persistent versus adolescence-limited antisocial behaviour In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Vol 3. Risk, disorder, and adaptation* (2nd ed., pp. 570-598). Hoboken, NJ: Wiley.

Moffit, T. E., Caspi, A., Dickson, N., Silva, P., & Stanton, W. (1996). Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. *Development and Psychopathology, 8*(2), 399-424. https://doi.org/10.1017/S095457900007161

Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14*(1), 179-207. doi: 10.1017/S09545794020001104

Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). *Sex differences in antisocial behaviour: Conduct disorder, delinquency, and violence in the Dunedin Longitudinal Study.* New York: Cambridge University Press.

Moffitt, T. E., Lynam, D., Silva, P. A. (1994). Neuropsychological tests predict persistent male delinquency. *Criminology, 32,* 101-124.

Moriguchi, Y., Decety, J., Ohnishi, T., Maeda, M., Mori, T., Nemoto, K., ... & Komaki, G. (2007). Empathy and judging other's pain: an fMRI study of alexithymia. *Cerebral Cortex, 17(9),* 2223-2234. doi: 10.1093/cercor/bhl130

Moretti, M. M. (2003). Affect regulation checklist. Unpublished research measure. Simon Fraser University, Burnaby, British Columbia, Canada.

Moretti, M. M., & Craig, S. G. (2013). Maternal versus paternal physical and emotional abuse, affect regulation and risk for depression from adolescence to early adulthood, *Child Abuse and Neglect, 37*(1), 4-13. doi:10.1016/j.chiabu.2012.09.015

Morrow, S., Panday, S. & Richter, L. (2005). *Where we're at and where we're going: Young people in South Africa in 2005.* Johannesburg: Umsobomvu Youth Fund.

Moss, E., Smolla, N., Cyr, C. Dubois Comtois, K., Mazzarello, T., & Barthiaume, C. (2006). Attachment and behaviour problems in middle childhood as reported by adult and child

informants. *Development and Psychopathology, 18*, 425-444. doi: 10.1017/S09594579406060238

Mullin, B. C., & Hinshaw, S. P. (2007). Emotion regulation and externalizing disorders in children and adolescents. In J. Gross (Ed.), *Handbook of emotion regulation* (pp. 523-541). New York: Guilford.

Mullins-Nelson, J. L., Salekin, R. T., & Leistico, A-M. R. (2006). Psychopathy, empathy and perspective-taking ability in a community sample: Implications for the successful psychopathy concept. *International Journal of Forensic Mental Health, 5*, 133-149. doi: 10.1080/14999013.2006.10471238

Myer, L., Stein, D. J., Grimsrud, A., Seedat, S., & Williams, D. R. (2008). Social determinants of psychological distress in a nationally-representative sample of South African adults. *Social Science and Medicine, 66,* 1828-1840. doi: 10.1016/j.socscimed.2008.01.025

Nagin, D., and Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*, 1181-1196.

Nagin, D. S., & Tremblay, R. E. (2001). Parental and early childhood prediction of physical aggression boys from kindergarten to high school. *Archives of General Psychiatry, 58*, 389-395. doi: 10.1001/archpsyc.58.4.389

Naito, M., Komatsu, S., & Fuke, T. (1994). Normal and autistic children's understanding of their own and others' false belief: a study from Japan. *British Journal of Developmental Psychology, 12*, 403-416.

Nattrass, N., & Seekings, J. (2001). "Two nations"? Race and economic inequality in South Africa today. *Daedalus, 130*, 45-75.

Oakes, J. M., & Rossi, P. H. (2003). The measurement of SES in health research: Current practice and steps toward a new approach. *Social Science and Medicine, 56,* 796-784.

Ostrov, J. M., & Keating, C. F. (2004). Gender differences in preschool aggression during free play and structured interactions: An observational study. *Social Development, 13*, 255-277. doi: 10.1111/j.1467-9507.2004.000266.x

Ostrove, J. M., Feldman, P., & Adler, N. E. (1999). Relations among socieoeconomic indicators and health for African-Americans and whites. *Journal of Health Psychology, 4*, 451-463.

Oxford, M., Cavell, T. A., & Hughes, J. N. (2003). Callous/unemotional traits moderate the relation between ineffective parenting and child externalizing problems: A partial replication and extension. *Journal of Clinical Child and Adolescent Psychology, 32*, 577-585. doi: 10.1207/S15374424JCCP3204.10

Ozonoff, S., & McEvoy, R. E. (1994). A longitudinal study of executive function and theory of mind development in autism. *Development and Psychopathology, 6*, 415-431. doi:10.1017/S0954579400006027

Pachter, L M., Auinger, P., Palmer, R., & Weitzman, M. (2006). Do parenting and the home environment, maternal depression, neighbourhood, and chronic poverty affect child behavioural problems differently in different racial-ethnic groups? *Pediatrics*, *117*(4), 1329-1338. doi: 10.1542/peds.2005-1784

Palin, F. L., Armistead, L., Clayton, A., Ketchen, B., Linder, G., Kokot-Louw, P., & Pauw,

A. (2009). Disclosure of maternal HIV-infection in South Africa: Description and relationship to child functioning. *AIDS and Behaviour, 13,* 1241-1252. doi: 10.1007/s10461-008-9447-4

Palmer, E. J. (2003). An overview of the relationship between moral reasoning and offending. *Australian Psychologist, 38,* 165-174.

Palmer, E. J., & Hollin, C. R. (1998). A comparison of patterns of moral development in young offenders and non-offenders. *Legal and Criminological Psychology, 3,* 225-235. doi: 10.1111/j.2044-8333.1988.tb00363.x

Palmer, E. J., & Hollin, C. R. (2001). Sociomoral reasoning, perceptions of parenting and self-reported delinquency in adolescents. *Applied Cognitive Psychology, 15*, 85-100. doi: 10.1002/1099-0720(200101/02)15:1<85::AID-ACP691>3.0.CO;2-6

Palmeri-Sams, D., & Truscott, S. D. (2004). Empathy, exposure to community violence, and use of violence among urban at risk adolescents. *Child and Youth Care Forum, 33,* 33-50. doi: 10.1023/B:CCAR.0000013756.88343.5f

Panfile, T. M., & Laible, D. J. (2012). Attachment security and child's empathy: The mediating role of emotion regulation. *Merril-Palmer Quarterly, 58,* 1-21. doi: 10.2307/23098060

Parker, Z., Dawes, A. & Farr, V. (2004). Interpersonal youth violence prevention. In S. Suffla, A. van Niekerk & N. Duncan (Eds.), *Crime, violence and injury prevention in South Africa: Developments and challenges* (pp. 22-39). Tygerberg South Africa: Medical Research Council.

Patterson, G. R., & Yoerger, K. (2002). A developmental model for early- and late-onset antisocial behavior. In J. B. Reid, J. Snyder & G. R. Patterson (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention,* (pp. 147-172). Washington, DC: American Psychological Association.

Pederson, R. (2009). Empirical research on empathy in medicine: A critical review. *Patient Education and Counselling, 76,* 307-322. doi: 10.1016/j.pec.2009.06.012

Penney, S. R., & Moretti, M. M. (2010). The roles of affect dysregulation and deficient affect in youth violence. *Criminal Justice and Behavior, 37*(6), 709-731. doi:10.1177/0093854810365446

Perner, J., Leekam, S., & Wimmer, H. (1987). Three-year-olds' difficulty with false belief: The case for a conceptual deficit. *British Journal of Developmental Psychology*, *5,* 125-137.

Perner, J., & Wimmer, H. (1985). "John thinks that Mary thinks that..." attribution of second-order beliefs by 5- to 10-year-old children. *Journal of Experimental Child Psychology*, *39*(3), 437-471. doi:10.1016/0022-0965(85)90051-7

Petit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and behaviour-problem outcomes of parental monitoring and psychological control in early adolescence. Child Development, 72, 583-598.

Pingault, J. -B., Côté, S. M., Lacourse, E., Galera, C., Vitaro, F., & Tremblay, R. E. (2013). Childhood hyperactivity, physical aggression and criminality: A 19 year prospective population-based study. *PLoS One, 8,* 1-7. https:/doi.org/10.1371/journal.pone.0062594

Pinnock, D. (1982). *Towards an understanding of the structure, function and cause of gang formation in Cape Town.* Master's thesis, University of Cape Town.

Pinnock, D. (2016). *Gang Town.* Cape Town: NB Publishers.

Piotrowska, P. J., Stride, C. B., Croft, S., & Bowe, R. (2015). Socioeconomic status and antisocial behaviour among children and adolescents: A systematic review and meta-analysis. *Clinical Psychology Review, 35,* 47-55. http://dx.doi.org/10.1016/j.cpr.2014.11.003

Posner, M. I., & Rothbart, M. K. (2007). *Educating the human brain.* Washington, DC: American Psychological Association.

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have theory of mind? *Behavioural and Brain Sciences, 4,* 515-526.

Preston, S. D., & de Waal, F. B. (2002). Empathy: its ultimate and proximate bases. *Behavioural Brain Sciences, 25,* 1-20.

Prinz, R. J., & Jones, T. L. (2003). Family based interventions. In C. A. Essau (Ed.), *Conduct and oppositional defiant disorders: Epidemiology, risk factors, and treatment* (pp. 279-298). Lawrence Erlbaum Associates: New Jersey.

Psychological Corporation. (1999). *Wechsler Abbreviate Scale of Intelligence (WASI) manual.* San Antonio, TX: Author.

Raine, A., Venables, P. H., & Mednick, S. A. (1997). Low resting heart rate at age 3 years predisposes to aggression at age 11 years: Evidence from the Mauritius Child Health Project. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 1457-1464. http://dx.doi.org/10.1097/00004583-199710000-00029

Reebye, P. (2005). Aggression during early years – infancy and preschool. *The Canadian Child and Adolescent Psychiatry Review, 14*(1), 16-20.

Reik, T. (1948). *Listening with the Third Ear*. New York: Grove Press.

Reniers, R. L. E., Corcoran, R., Drake, R., Shiryane, N. M., & Völlm, B. A. (2011). The QCAE: A questionnaire of cognitive and affective empathy. *Journal of Personality Assessment, 93,* 84-95. doi: 10.1080/00223891.2010.528484

Rizzolatti, G. & Arbib, M. A. (1998) Language within our grasp. *Trends in Neuroscience,* 21, 188-194.

Roberton, T., Daffern, M., & Buck, R. S. (2012). Emotion regulation and aggression. *Aggression and Violent Behaviour, 17,* 72-82. doi: 10.106/j.avb.2011.09.006

Roessner, V., Becker, A., Rothenberger, A., Rohde, L. A., & Banaschewski, T. (2007). A cross-cultural comparison between samples of Brazilian and German children with ADHD/HD using the Child Behavior Checklist. *European Archives of Psychiatry, 257,* 352-359. doi: 10.1007/s00406-007-0738-y

Röll, J., Koglin, U., & Petermann, F. (2012). Emotion regulation and childhood aggression: Longitudinal associations. *Child Psychiatry and Human Development, 43,* 909-923. doi: 10.1007/s10578-012-0303-4

Rothbart, M. K., & Bates, J. E. (2006). Temperament. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology. Vol. 3. Social, emotional, and personality development* (6th ed., pp.99-166). Hoboken, NJ: Wiley.

Rueckert, L., Branch, B., & Doan, T. (2011). Are gender differences in empathy due to differences in emotional reactivity? *Psychology, 2,* 574-578. doi: 1.4236/psych.2011.26088

Rueckert, L., & Naybar, N. (2008). Gender differences in empathy: The role of the right hemisphere. *Brain and Cognition, 67*, 162-167. doi: 10.1016/j.bandc.2008.01.002

Rutter, M. (2003). Crucial paths from risk indicators to causal mechanisms. In B. Lahey, T. Moffitt, & A. Caspi (Eds.), *Causes of Conduct Disorder and Juvenile Delinquency* (pp. 3-24). New York: Guilford Press.

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review, 110*, 145-172.

Ryan, J. J., Carruthers, C. A., Miller, L. J., Souheaver, G. T., Gontkovsky, S. T., & Zehr, M. D. (2003). Exploratory factor analysis of the Wechsler Abbreviated Scale of Intelligence (WASI) in adult standardization and clinical samples. *Applied Neuropsychology, 10*, 252-256. http://dx.doi.org/10.1207/s15324826an10048

Sameroff, A. J. (1975). Transactional models in early social relations. *Human Development, 18*, 65-79.

Schaefer, E. S. (1965). Children's reports of parental behaviour: An inventory. *Child Development, 36*, 413-424.

Schaffer, M., Clark, S., & Jeglic, E. L. (2009). The role of empathy and parenting style in the development of antisocial behaviour. *Crime and Delinquency, 54*(4), 586-599.

Schechory, M. T., & Sommerfeld, E. (2007). Attachment style, home leaving age and behavioural problems among residential care children. *Child Psychiatry and Human Development, 37*, 361-375. doi: 10.1007/s.10578-007-0051-z

Schechtman, Z. (2002). Cognitive and affective empathy in aggressive boys: Implications for counselling. *International Journal for the Advancement of Counselling, 24*, 211-222.

Schieman, S., & van Gundy, K. (2000). The personal and social links between age and self-reported empathy. *Social Psychology Quarterly, 63*, 152-174.

Schipper, M., & Petermann, F. (2013). Relating empathy and emotion regulation: Do deficits in empathy trigger emotion dysregulation? *Social Neuroscience, 8*, 101-107. doi: 10.1080/17470919.2012.761650

Schoon, I., Jones, E., Cheng, H., & Maughan, B. (2012). Family hardship, family instability and cognitive development. *Journal of Epidemiology and Community Health, 66*, 716-721. http://dx.doi.org/10.1136/jech.2010.1212288

Scott, S., Knapp, M., Henderson, J., & Maughan, B. (2001). Financial cost of social exclusion: Follow up study of antisocial children into adulthood. *British Medical Journal, 323*, 191. https://doi.org/10.1136/bmj.323.7306.191

Seedat, M., Van Niekerk, A., Jewkes, R., & Ratele, K. (2009). Violence and injuries in South Africa: prioritising an agenda for prevention. *The Lancet, 374*, 1011-1022.

Shaver, P. R., & Mikulincer, M. (2005). Attachment theory and research: Resurrection of the psychodynamic approach to personality. *Journal of Research in Personality, 39*, 22-45. https://doi.org/10.1016/j.jrp.2004.09.002

Shelver, J. (2016). WCED assists schools as parents struggle to pay fees. Retrieved from http://www.politicsweb.co.za/politics/wced-assists-schools-as-parents-struggle-to-pay-fe

Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology, 33*, 906-916.

Shields, N., Nadasen, K., & Pierce, L. (2008). The effects of community violence on children in Cape Town, South Africa. *Child Abuse and Neglect, 32*, 589-601. doi: 10.1016/j.chiabu.2007.07.010

Silverthorn, P., & Frick, P. J. (1999). Developmental pathways to antisocial behavior: The delayed-onset pathway in girls. *Development and Psychopathology, 11*, 101-126.

Singer, T. (2006). The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research. *Neuroscience and Biobehavioral Review, 30*, 855-863. doi: 10.1016/j.neubiorev.2006.06.011

Singer, T., Seymour, B., O-Doherty, J., Kaube, H., Dola, R. J., & Frith, C. D. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science, 303*, 1157-1162. doi: 10.1126/science.1093535

Skuy, M., Schutte, E., Fridjhon, P., & Carroll, S. (2001). Suitability of published neuropsychological test norms for urban African secondary school students in South Africa. *Personality and Individual Differences, 30*(8), 1413-1425.

Slack, K. S., Holl, J. L., McDaniel, M., Yoo, J., & Bolger, K. (2004). Understanding the risks of child neglect: an exploration of poverty and parenting characteristics. *Child Maltreatment, 9*, 395-408. doi: 10.1177/1077559504269193

Snibbe, A. C., & Markus, H. R. (2005). You can't always get what you want: Educational attainment, agency, and choice. *Journal of Personality and Social Psychology, 88*, 703-720. doi: 10.1037/0022-3514.88.4.703

Soal, S. (1988). *Engaging street gangs: A contextual study exploring student and teacher perceptions of gang activity and the relationship between gangs and political organization in the high schools of Mitchell's Plain, directed at generating guidelines for engaging with gangs.* Unpublished Honours thesis, University of Cape Town, South Africa.

Soenens, B., Duriez, B., Vansteenkiste, M., & Goossens, L. (2007). The intergenerational transmission of empathy-related responding in adolescence: The role of maternal support. *Personality and Social Psychology Bulletin, 33*(3), 299-311. doi: 10.1177/0146167206296300

Soto, J. A., & Levenson, R. W. (2009). Emotion recognition across cultures: the influence of ethnicity on empathic accuracy and physiological linkage. *Emotion, 6*, 874-884. doi: 10.1037/a0017399

South African Council of Educators (SACE). (2011). *School-based violence report: An overview of school-based violence in South Africa.* Centurion, South Africa: Author. Retrieved from http://www.sace.org.za/upload/files/School%20Based%20Violence%20Report-2011.pdf

SPSS. (2016). *PASW Statistics.* Chicago, IL: Author.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment and Human Development, 7*, 349-367. doi: 10.1080/14616730500365928

Standing, A. (2003). The social contradictions of organized crime on the Cape Flats. *ISS Paper 74.* Pretoria: Institute for Security Studies.

Standing, A. (2005). The threat of gangs and anti-gang policy. *ISS Paper 116.* Pretoria: Institute for Security Studies.

Standing, A. (2006). *Organized crime. A study from the Cape Flats.* Pretoria: Institute for Security Studies.

Steele, S., Joseph, R. M., & Tager-Flusberg, H. (2003). Developmental change in theory of mind abilities in children with autism. *Journal of Autism and Developmental Disorders, 33*, 461-467.

Steiger, J. H. (1990). Structural model evaluation and modification. *Multivariate Behavioral Research, 25*, 214-212.

Steinberg, L. (2001). We know some things: Adolescent-parent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19. doi: 10.1111/1532-7795.00001

Steinberg, L., Blatt Eisengart, I., & Cauffman, E. (2006). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful homes: A replication in a sample of serious juvenile offenders. *Journal of Research on Adolescence, 16,* 47-58. doi: 10.1111/j.1532-7795.2006.00119.x

Steyn, F. (2005). *Review of South African Innovations in Diversion and Reintegration of Youth at Risk.* Cape Town: Open Society Foundation for South Africa.

Stice, E., & Barrera, M. (1995). A longitudinal examination of the reciprocal relations between perceived parenting and adolescents' substance use and externalizing behaviors. *Developmental Psychology, 31*, 322-334. http://dx.doi.org/10.1037/0012-1649.31.2.322

Stolzenberg, L., & D'Allesio, S. J. (2008). Co-offending and the age-crime curve. *Journal of Research in Crime and Delinquency, 45*(1), 65-86. http://doi.org/10.1177/0022427807309441

Stone, V. (2006). The moral dimensions of human social intelligence. *Philosophical Explorations, 9,* 55-68. http://dx.doi.org/10.1080/13869790500492516

Strayer, J., & Roberts, W. (1989). Children's empathy and role taking: Child and parental factors and relations to prosocial behaviour. *Journal of Applied Developmental Psychology, 10*, 227-239.

Strayer, J., & Roberts, W. (2004). Children's anger, emotional expressiveness, and empathy: Relations with parents' empathy, emotional expressiveness, and parenting practices. *Social Development, 13*, 229-254.

Strauss, E., Sherman, E. M. S., & Spreen, O. (2006). *A Compendium of Neuropsychological Tests: Administration, Norms, and Commentary* (3rd ed.). Oxford/New York: Oxford University Press.

Sullivan, T. N., Helms, S. W., Kliewer, W., & Goodman, K. L. (2010). Associations between sadness and anger regulation coping emotional expression and physical and relational aggression among urban adolescents. *Social Development, 19*(1), 30-51. doi: 10.1111/j.1467-9507.2008.00531.x

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation? B*ritish Journal of Developmental Psychology, 17,* 435-450. doi: 10.1348/026151099165384

Tabarah, A., Badr, L. K., Usta, J., & Doyle, J. (2016). Exposure to violence and children's desensitization attitudes in Lebanon. *Journal of Interpersonal Violence, 31,* 3017-3038. doi: 10.1177/0886260515584337

Titchener, E. B. (1917). *A Text-Book of Psychology.* New York: The Macmillan Company.

Tredoux, C., & Durrheim, K. (Eds.) (2002). *Numbers, hypotheses and conclusions. A course in statistics for the social sciences.* Cape Town: UCT Press.

Tremblay, R. E. (2000). The development of aggressive behaviour during childhood: What have we learned in the past century? *International Journal of Behavioral Development, 24,* 129-141. doi: 10.1080/016502500383232

Tremblay, R. E. (2015). Developmental origins of physical aggression. In P. D. Donnelly & C. L. Ward (Eds.), *Oxford textbook of violence prevention: Epidemiology, evidence and policy* (pp. 35-46). Oxford: Oxford University Press.

Tremblay, R. E., Japel, C., Perusse, D., Mcduff, P., Boivin, M., Zoccolillo, M., & Montplaisir, J. (1999). The search for the age of 'onset' of physical aggression: Rousseau and Bandura revisited. *Criminal Behavior and Mental Health, 9,* 8–23.

Tremblay, R. E., & Côté, S. M. (2009). Development of sex differences in physical aggression: the maternal link to epigenetic mechanisms. *Behavioral and Brain Sciences, 32,* 290-291. http://doi.org/10.1017/S0140525X09990288

Trentacosta, C. J., Hyde, L. W., Shaw, D. S., Dishion, T. J., Gardner, F., & Wilson, M. (2008). The relations among cumulative risk, parenting, and behavior problems during early childhood. *Journal of Child Psychology and Psychiatry, 49,* 1211-1219.

Troy, M., & Sroufe, L. A. (2002). Victimization among pre-schoolers: Role of attachment relationship history. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 166-172. https://doi.org/10.1097/00004583-198703000-00007

Trudeau, L., Mason, W. A., Randall, G. K., Spoth, R., & Ralston, E. (2012). Effects of parenting and deviant peers on early to mid-adolescent conduct problems. *Journal of Abnormal Child Psychology, 40,* 1249-1264. doi: 10.1007/s10802-012-9648-1

Tucker, D. M., Luu, P., & Derryberry, D. (2005). Love hurts: The evolution of empathic concern through the encephalization of nociceptive capacity. *Development and Psychopathology, 17,* 699-713. doi: 10.1017/S0954579405050339

Vachon, D. D., Lynam, D. R., & Johnson, J. A. (2013). The (Non)Relation Between Empathy and Aggression: Surprising Results From a Meta-Analysis. *Psychological Bulletin, 140,* 751-773. doi: 10.1037/90035236

van Beijsterveldt, C. E. M., Bartels, M., Hudziak, J. J., & Boomsma, D. I. (2003). Causes of stability of aggression from early childhood to adolescence: A longitudinal genetic analysis in Dutch twins. *Behavior Genetics, 33*(5), 591–605. Doi: http://dx.doi.org/10.1023/A:1025735002864

van der Merwe, A., & Dawes, A. (2000). Prosocial and antisocial tendencies in children exposed to community violence. *South African Journal of Child and Adolescent Mental Health, 12,* 19-37. Doi: 10.1080/16826108.2000.9632365

van der Merwe, A., Dawes, A., & Ward, C. L. (2012). The development of youth violence: An ecological understanding. In C. L. Ward, A. Van der Merwe, & A. Dawes (Eds.), *Youth violence: Sources and solutions in South Africa*, (pp. 53–91). Cape Town: UCT Press.

van der Helm, G. H. P., Stams, G. J. J. M., van der Stel, J. C., van Langen, M. A. M., & van der Laan, P. H. (2012). Group climate and empathy in a sample of incarcerated boys. *International Journal of Offender Therapy and Comparative Criminology, 56,* 1149-1160. doi: 10.1177/0306624X11421649

van IJzendoorn, M. H., Goldberg, S., Kroonenberg, P. M., & Frenkel, O. J. (1992). The relative effects of maternal and child problems on the quality of attachment: a meta-analysis of attachment in clinical samples. *Child Development, 63,* 840-858. doi: 10.1111/j.1467-8624.1992.tb01665.x

van IJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychology, 11,* 225-249.

van Langen, M. A. M., Wissink, I. B., van Vugt, E. S., van der Stouwe, T., & Stams, G. J. J. M. (2014). The relation between empathy and offending: A meta-analysis. *Aggression and Violent Behavior, 19,* 179-189. doi: 10.1016/j.avb.2014.02.003

van Lier, P., Vitaro, F., Barker, E. D., Koot, H. M., & Tremblay, R. E. (2009). Developmental links between trajectories of physical, vandalism, theft, and alcohol-drug use from childhood to adolescence. *Journal of Abnormal Child Psychology, 37,* 481-492. doi: 10.1007/s10802-008-9289-6

van Lissa, C.J., Hawk, S.T., de Wied, M., Koot, H.M., van Lier, P. & Meeus, W.H.J. (2014). The longitudinal interplay of affective and cognitive empathy within and between adolescents and mothers. *Developmental Psychology, 50,* 1219-1225. doi: 10.1037/a0035050

Vance, J. E., Bowen, N. K., Fernandez, G., & Thompson, S. (2002). Risk and protective factors as predictors of outcome in adolescents with psychiatric disorder and aggression. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 36-43.

van Wyhe, K. (2012). *Wechsler Abbreviated Scale of Intelligence: Preliminary normative data for 12-15-year-old English- and Afrikaans-speaking Coloured learners in the Western Cape.* Unpublished Masters thesis, University of Cape Town, South Africa.

van Wyk, B. E., & Theron, W. H. (2005). Fighting gangsterism in South Africa: A Contextual review of gang and anti-gang movements in the Western Cape, *Acta Criminologica, 18*(3), 51-60.

Veenstra, R., Lindenberg, S., Oldehinkel, A. J., de Winter, A. F., & Ormel, J. (2006). Temperament, environment, and antisocial behaviour in a population sample of preadolescent boys and girls. *International Journal of Behavioral Development, 30,* 422-432.

von Stumm, S., & Plomin, R. (2015). Socioeconomic status and growth of intelligence from infancy through adolescence. *Intelligence, 48,* 30-36. http://dx.doi.org/10.1016/j.intell.2014.10.002

Ward, C. L. (2007a). Young people's violent behaviour: Social learning in context. In P. Burton (Ed.), *Someone stole my smile: An exploration into the causes of youth violence in South Africa* (pp. 9-35). Cape Town: Centre for Justice and Crime Prevention.

Ward, C. (2007b). 'It feels like it's the end of the world.' Cape Town's youth talk about gangs and community violence. *ISS Monograph Series* No. 136. Pretoria: Institute for Security Studies.

Ward, C. L. (2015). Youth violence. In P. D. Donnelly & C. L. Ward (Eds.), *Oxford textbook of violence prevention: Epidemiology, evidence and policy* (pp. 27-34). Oxford: Oxford University Press.

Ward, C. L., & Bakhuis, K. (2009). Indigenous theories of children's involvement in gangs: Cape Town's young people speak out. *Children and Society, 24*, 50-62.

Ward, C. L., & Cooper, A. (2012). Gangs and child safety. In A. van Niekerk, S. Suffla, & M. Seedat (Eds.), *Crime, violence and injury in South Africa: 21st century solutions for child safety* (pp. 148-161). Tygerberg: MRC-University of South Africa Safety and Peace Promotion Research Unit.

Ward, C. L., Gould, C., Kelly, J., & Mauff, K. (2015). Spare the rod and save the child: Assessing the impact of parenting on child behaviour and mental health. *SA Crime Quarterly, 51*, 9-22. http://dx.doi.org/10.4314/sacq.v51i1.2

Ward, C. L., Flisher, A. J., Zissis, M., Muller, M., & Lombard, C. (2003). Exposure to violence and its relationship to psychopathology in adolescents. *Injury Prevention, 2001, 7*, 297-301.

Ward, C. L., van der Merwe, & Dawes A. (Eds.). (2012). *Youth violence: Sources and solutions in South Africa*. Cape Town: UCT Press.

Warden, D., & Mackinnon, S. (2003). Prosocial children, bullies and victims: An investigation of their sociometric status, empathy and social problem-solving strategies. *British Journal of Developmental Psychology, 21*, 367-385. doi: 10.1348/026151003322277757

Wechsler, D. (1999). *Wechsler Abbreviated Scale of Intelligence Manual.* San Antonio, TX: The Psychological Corporation.

Wechsler, D. (2004). *Wechsler Intelligence Scale for Children fourth UK edition manual*. Oxford, UK: Pearson Assessment.

Weinfeld, N. S., Sroufe, L. A., Egeland, B., & Carlson, E. A. (1999). The nature of individual difference in infant-caregiver attachment. In J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 68-88). New York: Guilford Press.

Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development, 72*, 655-684. doi:10.1111/1467-8624.00304

Wellman, H. M., & Woolley, J. D. (1990). From simple desires to ordinary beliefs: The early development of everyday psychology. *Cognition, 35*(3), 245-275. doi:10.1016/0010-0277(90)90024-E

Wessels, I., & Ward, C. L. (2015). A 'best buy' for violence prevention: Evaluating parenting skills programmes: Evaluating parenting skills programmes. *South African Crime Quarterly, 54*, 28. http://dx.doi.org/10.4314/sacq.v54i1.2

Wicker, B., Keysers, C., Plailly, J., Royet, J. P., Gallese, V., & Rizzolatti, G. (2003). Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust. *Neuron, 40*, 655-664. doi: 10.1016/S0896-6273(03)00679-2

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103-128. doi:10.1016/0010-0277(83)90004-5

Wispé, L. (1986). The distinction between sympathy and empathy: To call forth a concept a word is needed. *Journal of Personal and Social Psychology, 50*, 314-321

Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W. C., & Chu, B. C. (2003). Parenting and childhood anxiety: theory, empirical findings and future directions. *Journal of Child Psychology and Psychiatry, 44*, 134-151.

Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and childhood conduct problems: The moderating role of callous-unemotional traits. *Journal of Consulting and Clinical Psychology, 65*, 301-308.

Xie, H., Cairns, B. D., & Cairns, R. B. (2002). The development of social aggression and physical aggression: A narrative analysis of interpersonal conflicts. *Aggressive Behavior, 28*, 341-355. doi: 10.1002/ab.80008

Yu, Y., Shi, J., Huang, Y., & Wang, J. (2006). Relationship between family characteristics and aggressive behaviour of children and adolescents. *Journal of Huazhong University of Science and Technology (Medical Sciences), 26*(3), 380-383. doi:10.1007/BF02829583

Zahn-Waxler, C., & Polanichka, N. (2004). All things interpersonal: Socialization and female aggression. In M. Putallaz & K. L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls: A developmental perspective* (pp. 48-68). New York: Guilford Press.

Zaki, J., & Ochsner, K. N. (2012). The neuroscience of empathy: progress, pitfalls, and promise. *Nature Neuroscience, 15* (5), 675-680. doi: 10.1038/nn.3085

Zelazo, P. D., Carlson, S. M., & Kesek, A. (2008). The development of executive function in childhood. In C. Nelson & M. Luciana (Eds.), *Handbook of Developmental Cognitive Science* (2nd ed.). Cambridge, MA: MIT Press.

Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). The development of coping across childhood and adolescence: An integrative review and critique of research. *International Journal of Behavioural Development, 35*(1), 1-17. doi: 10.1177/0165025410384923

Zhou, Q., Eisenberg, N., Losoya, S. H., Fabes, R. A., Reiser, M., Guthrie, I. K., ... Shepard, S. A. (2002). The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. *Child Development, 73*, 893.

Appendix A

Stratification of Participants by Age, Gender, and SES Across Samples

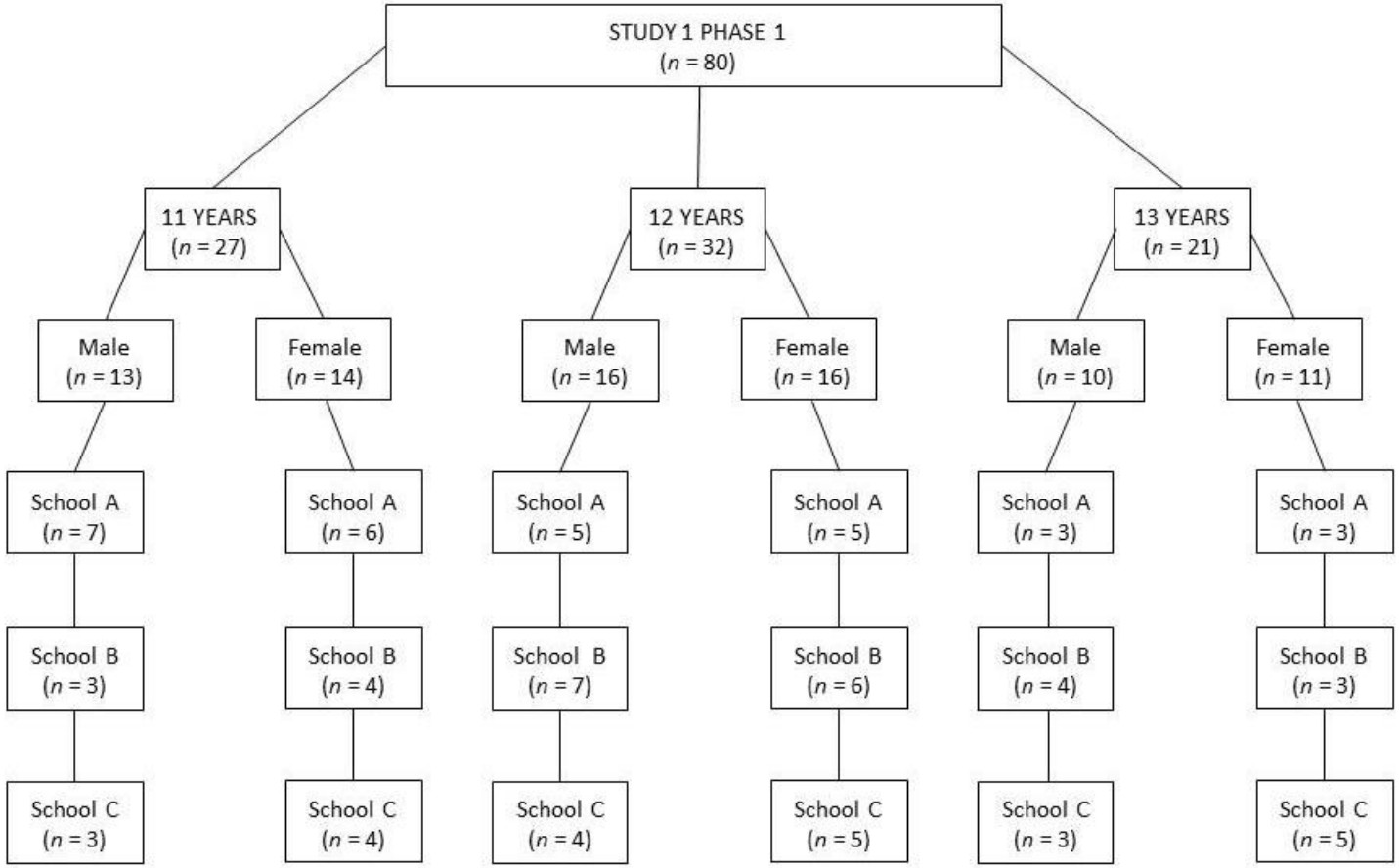

Figure 13. Study 1 Phase 1 stratification of participants by Age, Gender, and SES. Note that School was used as proxy for SES for the purposes of stratification.

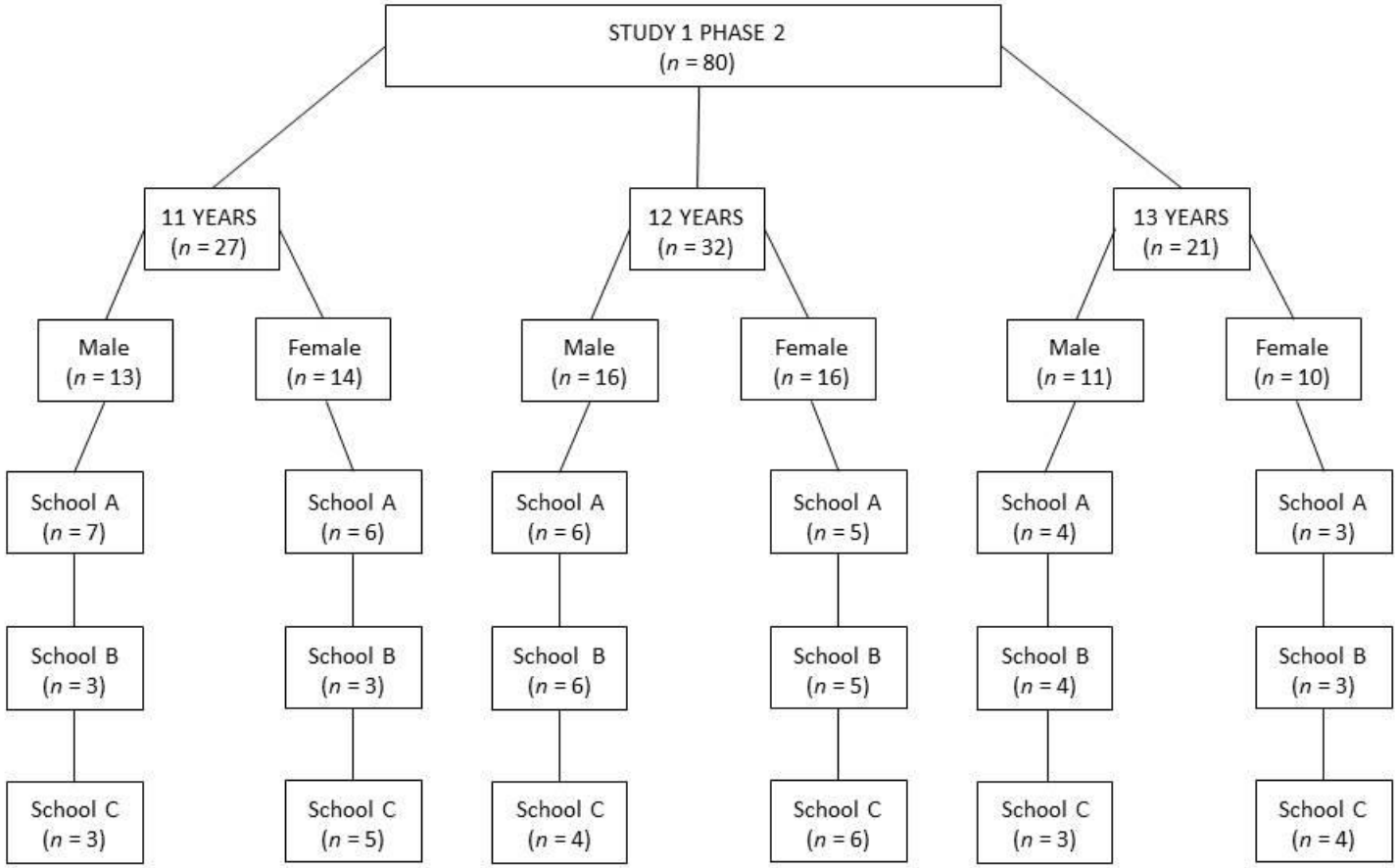

Figure 14. Study 1 Phase 2 stratification of participants by Age, Gender, and SES. Note that School was used as proxy for SES for the purposes of stratification.

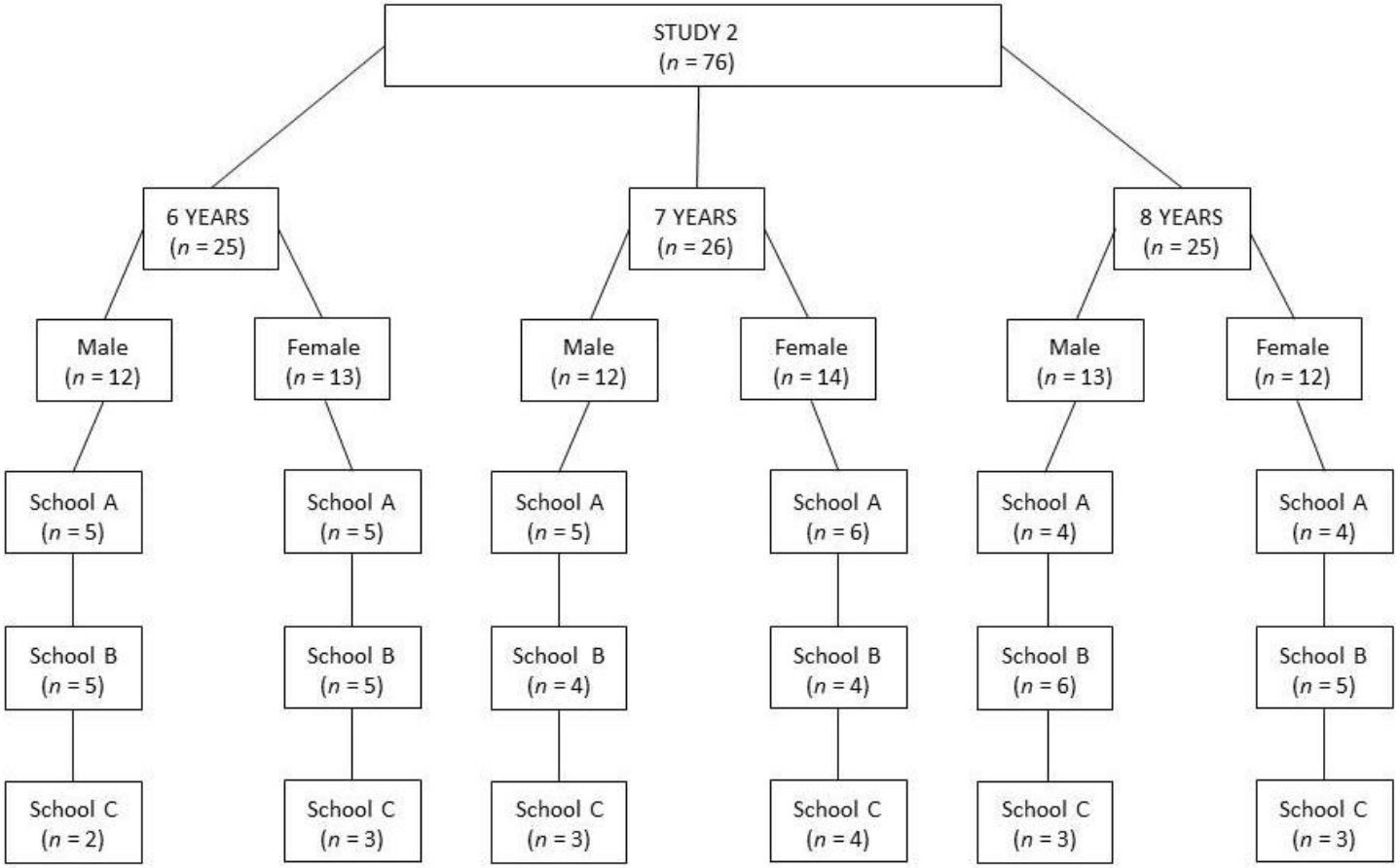

Figure 15. Study 2 stratification of participants by Age, Gender, and SES. Note that School was used as proxy for SES for the purposes of stratification.

Appendix B

Ethical Approval Documents from the University of Cape Town Ethics Review Committee and the Western Cape Education Department

This study formed part of a broader research project investigating *The Development of Moral Reasoning* (Principal Investigator: Dr Susan Malcolm-Smith), for which the Ethics Review Committee of the Faculty of Humanities at the University of Cape Town and the Western Cape Education Department (WCED) granted approval for 2013-2015. Data collection for this dissertation took place in 2013-2015. Ethical approval documents from the UCT Ethics Review Committee and the WCED are presented here. Note that the UCT Ethics Review Committee grants permission to conduct research for the duration of a broader project (2013 document presented), while the WCED grants permission annually (2013, 2014, and 2015 documents presented).

UCT Ethics Review Committee Approval Document

UNIVERSITY OF CAPE TOWN

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5 March 2013

Dr. Susan Malcolm-Smith
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Dr Malcolm-Smith,

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your project:

The development of moral reasoning

Please use the reference PSY2013-001 if required. I wish you all the best for your study.

Yours sincerely,

Signed

Johann Louw PhD
Professor
Chair: Ethics Review Committee

WCED Approval Documents (2013-2015)

Western Cape Government
Education

Directorate: Research

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REFERENCE: 20130315-8009
ENQUIRIES: Dr A T Wyngaard

Dr Susan Malcolm-Smith
Department of Psychology
UCT
Private Bag
Rondebosch

Dear Dr Susan Malcolm-Smith

RESEARCH PROPOSAL: THE DEVELOPMENT OF MORAL REASONING

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from **01 May 2013 till 20 September 2013**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

The Director: Research Services
Western Cape Education Department
Private Bag X9114
CAPE TOWN
8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 15 March 2013

Lower Parliament Street, Cape Town, 8001 Private Bag X9114, Cape Town, 8000
tel: +27 21 467 9272 fax: 0865902282 Employment and salary enquiries: 0861 92 33 22
Safe Schools: 0800 45 46 47 www.westerncape.gov.za

Western Cape Government
Education

Directorate: Research

Audrey.wyngaard2@pgwc.gov.za
tel: +27 021 467 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20130315-8009
ENQUIRIES: Dr A T Wyngaard

Dr Susan Malcolm-Smith
Department of Psychology
UCT
Rondebosch

Dear Dr Susan Malcolm-Smith

RESEARCH PROPOSAL: THE DEVELOPMENT OF MORAL REASONING

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

13. Principals, educators and learners are under no obligation to assist you in your investigation.
14. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
15. You make all the arrangements concerning your investigation.
16. Educators' programmes are not to be interrupted.
17. The Study is to be conducted from **29 January 2014 till 30 September 2014**
18. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
19. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
20. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
21. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
22. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
23. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 30 January 2014

Lower Parliament Street, Cape Town, 8001 Private Bag X9114, Cape Town, 8000
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REFERENCE: 20130315-8009
ENQUIRIES: Dr A T Wyngaard

Dr Susan Malcolm-Smith
Department of Psychology
UCT
Rondebosch

Dear Dr Susan Malcolm-Smith

RESEARCH PROPOSAL: THE DEVELOPMENT OF MORAL REASONING

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

24. Principals, educators and learners are under no obligation to assist you in your investigation.
25. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
26. You make all the arrangements concerning your investigation.
27. Educators' programmes are not to be interrupted.
28. The Study is to be conducted from **21 January 2015 till 30 September 2015**
29. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
30. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
31. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
32. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
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34. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 08 October 2014

Lower Parliament Street, Cape Town, 8001 Private Bag X9114, Cape Town, 8000
tel: +27 21 467 9272 fax: 0865902282 Employment and salary enquiries: 0861 92 33 22
Safe Schools: 0800 45 46 47 www.westerncape.gov.za

Appendix C

Study Information and Parental Consent Form

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

The Development of Empathy and Moral Reasoning

Dear Parent/Legal guardian,

You and your child are invited to participate in a research study investigating the development of empathy and moral reasoning in children. This study focuses on how children of different ages share what other people are feeling and understand what others feel and think, and how children of different ages feel about good and bad behaviour.

Principal Researchers:

Dr Susan Malcolm-Smith	Dr Jean Decety	Lea-Ann Pileggi
Senior Lecturer	Professor	Doctoral candidate
Department of Psychology	Department of Psychology	Department of Psychology
University of Cape Town	University of Chicago	University of Cape Town

What does this study involve?

Approximately 400 children aged 3-13 years will participate in this study. If your child participates, a researcher will guide her/him through several tasks. For example, in one task, children will be asked to view pictures of hands or feet in neutral situations (e.g. a hand opening a door) or in situations that could be painful (e.g. a hand getting stuck in a door). After viewing these pictures, children will be asked how sorry they feel for the person, and how much pain they think that person might be feeling. All pictures are appropriate for children as young as 3 years of age and have been taken from situations children readily observe in every-day life.

Additionally, children will complete a number of pencil and paper tasks. In one such task, your child will answer questions about short stories. These questions will look at their ability

to take another person's point of view. Children will also play a game of cards and will be asked how they felt during that game when they won and when they lost. Altogether this study will take about 90 minutes of your child's time. Two sessions (45 minutes each) will take place during the school day. We will take a break after completing some of the tasks, and take additional short breaks if your child gets tired.

We also have a number of questionnaires (including a Demographic questionnaire) that will ask you questions about your own views and questions about your child's views. Your completion of these documents is completely voluntary. Should you agree to completing these additional questionnaires, we will contact you to arrange a time to meet at your child's school, for you to complete them.

Are there any benefits to taking part in the study?

Your child will receive some sweets for her/his participation, as well as some stickers of her/his choice, and you will receive R100 if you complete all questionnaires. More importantly, should we identify any behavioural or learning difficulties that are likely to affect your child's capacity to learn, we will provide you with written feedback, and referrals to appropriate service providers where necessary. Furthermore, the results of this research could provide essential information about how children process emotional information and this may be helpful in planning effective educational programs for children with social difficulties.

What are the risks of the study?

There are no risks to you or your child through participating in this research. However, if any child does become at all upset, or tired, she or he may stop participating at any point. We would like to emphasise that participation in this study is entirely voluntary, and will not affect your child's education. All results will be securely stored, and kept strictly confidential.

If you would like your child to participate in the study, please complete the consent form, as well as the demographics survey, and return to your child's school. Please answer all the questions as accurately and truthfully as possible. We understand that some of this

information may be sensitive, but be assured that all information will be kept strictly confidential.

Should you have any questions or queries about the research or your participation, please do not hesitate to contact Lea-Ann Pileggi: (email) leapileggi@gmail.com, or Susan Malcolm-Smith: (phone) 021 650 4605, (email) Susan.Malcolm-Smith@uct.ac.za, or contact Professor Johann Louw (Psychology Ethics Committee): (phone) 021 650 3417, (email) Johann.Louw@uct.ac.za.

Thank you for your participation.

CONSENT FORM

The research project and the procedures associated with it have been explained to me. I hereby consent to participating in this research, and give my permission for my child to participate in the above-described research project.

Child's name: _____ Parent/guardian's name: _____

Date: _____ Signature of parent/guardian: _____

Please provide a contact number below should you be willing to complete the additional questionnaires (for which you will be compensated with R100 upon completion), and indicate which time/s would be most convenient to receive a phone call to arrange a time for you to meet with the researcher to complete the questionnaires.

Phone: _____ Time/s:_____

Appendix D

Demographic Questionnaire

DEMOGRAPHIC QUESTIONNAIRE

International research guidelines suggest that researchers report some attributes of all research participants (e.g., children's gender, parents' educational background, etc.). To help us collect this information, we are asking you to complete this brief questionnaire. All your answers are kept private, and won't be used in a way that identifies you or your child. If you are uncomfortable answering any of the items, feel free to ignore them.

Today's Date: _____

Who is completing this questionnaire? (Please √)

☐ Biological parent ☐ Grandparent ☐ Nanny
☐ Foster parent ☐ Aunt/Uncle ☐ Friend
☐ Stepparent ☐ Sibling ☐ Other: _____

Are you the child's primary caregiver? (Circle one) Y / N

Your gender: M / F

Child's Information

Child's date of birth (including the year): _____

Child's gender: M / F

Child birth order: Child number _____ out of _____ children.

Ages of siblings: Boy / Girl Age: _____
Boy / Girl Age: _____
Boy / Girl Age: _____

Child's height (in cm): _____ Child's weight (in kg): _____

Child's home language: _____

Child's race (Please √):

☐ Black South African ☐ Coloured ☐ Indian
☐ Black African (Other) ☐ White/Caucasian ☐ Other: _____
(Please specify)

Please list any serious health problems this child has had: _____

_____

Was this child born more than two weeks early? Y / N

Please list any medications this child is taking for behavior issues, attention difficulties, or issues related to moods and feelings: _____

_____

Does this child currently attend (Please √):

☐ Daycare/Crèche ☐ Grade R

☐ Preschool ☐ Primary school (Grade: _____)

Household Information

Who does this child currently live with? (Please √ **all** that apply)

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Who is this child's primary caregiver?

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Languages currently spoken at home:

Home language: _____

Other: _____

Religion(s) practiced in the home: _____

Primary Caregiver Information

Current age: _____

Marital Status:

☐ Married ☐ Divorced ☐ Widow/Widower
☐ Single ☐ Remarried ☐ Separated

Current job title:

Mother: _____
Father: _____
Primary caregiver: _____

Total family/household income last year:

☐ Less than R35 000 ☐ R176 000-R225 000 ☐ R376 000-R425 000
☐ R36 000-R75 000 ☐ R226 000-R275 000 ☐ R426 000-R475 000
☐ R76 000-R125 000 ☐ R276 000-R325 000 ☐ R476 000-R525 000
☐ R126 000-R175 000 ☐ R326 000-R375 000 ☐ More than R525 000

Highest level of education reached for mother, father, and/or guardian (please circle appropriate number):

	Biological mother	Biological father	Guardian
1) 0 years (No Grades / Standards) = Never went to school	1.	1.	1.
2) 1-6 years (Grades 1-6 / Sub A-Std 4) = Didn't complete primary school	2.	2.	2.
3) 7 years (Grade 7 / Std 5) = Completed primary school	3.	3.	3.
4) 8-11 years (Grades 8-11 / Stds 6-9) = Some secondary education (didn't complete high school)	4.	4.	4.
5. 12 years (Grade 12 / Std 10) = Completed high school	5.	5.	5.
6. 13+ years = Tertiary education Completed university / technikon / college	6.	6.	6.
7. Don't know	7.	7.	7.

Parental employment (please circle appropriate number):

	Biological mother	Biological father	Guardian
1. Higher executives, major professionals, owners of large businesses	1.	1.	1.
2. Business managers of medium sized businesses, lesser professions (e.g. nurses, opticians, pharmacists, social workers, teachers)	2.	2.	2.
3. Administrative personnel, managers, minor professionals, owners / proprietors of small businesses (e.g. bakery, car dealership, engraving business, plumbing business, florist, decorator, actor, reporter, travel agent)	3.	3.	3.
4. Clerical and sales, technicians, small businesses (e.g. bank teller, bookkeeper, clerk, draftsperson, timekeeper, secretary)	4.	4.	4.
5. Skilled manual – usually having had training (e.g. baker, barber, chef, electrician, fireman, machinist, mechanic, painter, welder, police, plumber, electrician)	5.	5.	5.
6. Semi-skilled (e.g. hospital aide, painter, bartender, bus	6.	6.	6.

driver, cook, garage guard, checker, waiter, machine operator)			
7. Unskilled (e.g. attendant, janitor, construction helper, unspecified labour, porter, unemployed)	7.	7.	7.
8. Homemaker	8.	8.	8.
9. Student, disabled, no occupation	9.	9.	9.

Material and financial resources (please circle appropriate number):

Which of the following items, in working order, does your household have?

Items	Yes	No
1. A refrigerator or freezer	1.	1.
2. A vacuum cleaner or polisher	2.	2.
3. A television	3.	3.
4. A hi-fi or music center (radio excluded)	4.	4.
5. A microwave oven	5.	5.
6. A washing machine	6.	6.
7. A video cassette recorder or dvd player	7.	7.

Which of the following do you have in your home?

Items	Yes	No
1. Running water	1.	1.
2. A domestic servant	2.	2.
3. At least one car	3.	3.
4. A flush toilet	4.	4.
5. A built-in kitchen sink	5.	5.
6. An electric stove or hotplate	6.	6.
7. A working telephone	7.	7.

Do you personally do any of the following?

Items	Yes	No
1. Shop at supermarkets	1.	1.
2. Use any financial services such as a bank account, ATM card or credit card	2.	2.
3. Have an account or credit card at a retail store	3.	3.

Appendix E

Child Assent Form

UNIVERSITY OF CAPE TOWN

DEPARTMENT OF PSYCHOLOGY

The Development of Moral Reasoning and Empathy

Assent Form

Hello! We want to tell you about a research study we are doing. A research study is a way to learn more about something. We would like to find out more about how children feel about good and bad behaviour, and how they understand what other people are feeling and thinking.

If you agree to join this study, you will be asked to do some tasks on the computer. For example, we will show you some pictures and ask you how you feel about them. We will also show you some short movies on the computer screen. These are not the kind of movies you see on TV. They are movies that we made to help us study how children feel about good and bad behaviour. It is very important that you watch the pictures carefully. You will also be asked to do some other tasks, like tell us the meaning of some words, and we will ask you to answer questions about short stories we will read to you.

Together these tasks will take about 90 minutes. We will take a break after you've done some of the tasks. We can take other short breaks too if you get tired.

You do not have to join this study. It is up to you. No one will be angry with you if you don't want to be in the study or if you join the study and change your mind later and stop.

Do you have any questions about the study? If you think you can do it and you don't have any more questions about it, will you sign this paper? If you sign your name below, it means that you agree to take part in this study.

Child's Signature: _____ Date: _____

Interviewer's Signature: _____ Date: _____

Appendix F

Snap Game

Children completed a visual analogue scale (presented below) after playing the Snap Game where they reported how they were feeling during the game while they were losing. The researcher then completed the same scale based on their observations of the child's behaviours.

HOW ANGRY/FRUSTRATED DID YOU FEEL?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO PUNCH SOMEONE?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO SCREAM?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO YELL AT SOMEONE?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO CRY?

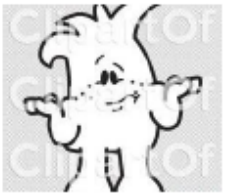
NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO KICK SOMEONE?

NOT AT ALL — A LITTLE — A LOT

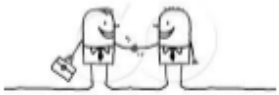
HOW MUCH DID YOU WANT TO BREAK SOMETHING?

NOT AT ALL — A LITTLE — A LOT



HOW MUCH DID YOU WANT TO SHRUG IT OFF?

NOT AT ALL — A LITTLE — A LOT



HOW MUCH DID YOU WANT TO CONGRATULATE THE OTHER PLAYER?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH DID YOU WANT TO LAUGH?

NOT AT ALL — A LITTLE — A LOT

HOW MUCH FUN WERE YOU HAVING?

NOT AT ALL — A LITTLE — A LOT

Appendix G

The Questionnaire of Cognitive and Affective Empathy (parent-report of child version)

People differ in the way they feel in different situations. Below you are presented with a number of characteristics that ***may or may not apply to your child***. Read each characteristic and indicate how much you agree or disagree with the item by selecting the appropriate box. Answer quickly and honestly.		Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
1.	My child sometimes finds it difficult to see things from another's point of view.				
2.	My child is usually objective when he/she watches a film or play, and doesn't often get completely caught up in it.				
3.	My child tries to look at everybody's side of a disagreement before he/she makes a decision.				
4.	My child sometimes tries to understand his/her friends better by imagining how things look from their perspective.				
5.	When my child is upset at someone, he/she will usually try to "put him/herself in the person's shoes" for a while.				
6.	Before criticizing somebody, my child tries to imagine how he/she would feel in their place.				
7.	My child often gets emotionally involved in his/her friends' problems.				
8.	My child is inclined to get nervous when others around him/her seem nervous.				
9.	People my child is with have a strong influence on his/her mood.				
10.	It affects my child very much when one of his/her friends seems upset.				
11.	My child often gets deeply involved with the feelings of a character in a film, play, or novel.				
12.	My child gets very upset when he/she sees someone cry.				
13.	My child is happy when he/she is with a cheerful group and sad when others are glum.				
14.	It worries my child when others are worrying and panicky.				
15.	My child can easily tell if someone else wants to enter into a conversation.				
16.	My child can quickly pick up if someone says one thing but means another.				
17.	It is hard for my child to see why some things upset people so much.				
18.	My child finds it easy to put him/herself in somebody else's shoes.				
19.	My child is good at predicting how someone will feel.				
20.	My child is quick to spot when someone in a group is feeling awkward or uncomfortable.				
21.	Other people tell my child he/she is good at understanding what others are feeling and what others are thinking.				
22.	My child can easily tell if someone else is interested or bored with what he/she is saying.				
23.	Friends talk to my child about their problems as they say that my child is very understanding.				
24.	My child can sense if he/she is intruding, even if the other person does not tell him/her.				
25.	My child can easily work out what another person might want to talk about.				
26.	My child can tell if someone is masking their true emotion.				
27.	My child is good at predicting what someone will do.				
28.	My child can usually appreciate the other person's viewpoint, even if he/she does not agree with it.				
29.	My child usually stays emotionally detached when watching a film.				
30.	My child always tries to consider the other person's feelings before he/she does something.				
31.	Before my child does something, he/she tries to consider how his/her friends will react to it.				

Appendix H

The Affect Regulation Checklist (parent-report of child version)

*Circle the answer that best describes **your child** (circle ONE answer for each question):*

	YES - A LOT	YES - A LITTLE	NO
1. My child has a hard time controlling his/her feelings.	0	1	2
2. It's very hard for my child to calm down when he/she gets upset.	0	1	2
3. My child's feelings just take over and he/she can't do anything about it.	0	1	2
4. When my child gets upset, it takes a long time for him/her to get over it.	0	1	2
5. Thinking about why he/she has different feelings helps him/her learn about him/herself.	0	1	2
6. Thinking about why he/she acts in certain ways helps him/her understand him/herself.	0	1	2
7. The time my child spends thinking about what's happened to him/her in his/her life helps him/her to understand him/herself.	0	1	2
8. If he/she thinks about his/her feelings, it just makes everything worse.	0	1	2
9. My child tries hard not to think about his/her feelings.	0	1	2
10. My child feels that it is best to keep feelings in control and not to think about them.	0	1	2
11. My child keeps his/her feelings to him/herself.	0	1	2
12. My child tries to do other things to keep his/her mind off how he/she feels.	0	1	2

Appendix I

The Children's Attachment Style Classification Questionnaire (parent-report version)

How true is each of these sentences of your child?

	Not true	Unsure	True
1. My child makes friends with other children easily.	0	1	2
2. My child doesn't feel comfortable trying to make friends.	0	1	2
3. It is easy for my child to depend on others, if they're good friends of his/hers.	0	1	2
4. Sometimes others get too friendly and too close to my child.	0	1	2
5. Sometimes my child is afraid that other kids won't want to be with him/her.	0	1	2
6. My child would like to be really close to some children and always be with them.	0	1	2
7. It's all right with my child if good friends trust and depend on him/her.	0	1	2
8. It's hard for my child to trust others completely.	0	1	2
9. My child sometimes feels that others don't want to be good friends with him/her as much as he/she does with them.	0	1	2
10. My child usually believes that others who are close to him/her will not leave him/her.	0	1	2
11. My child is sometimes afraid that no one really loves him/her.	0	1	2
12. My child finds it uncomfortable and gets annoyed when someone tries to get too close to him/her.	0	1	2
13. It's hard for my child to really trust others, even if they're good friends of his/hers.	0	1	2
14. Children sometimes avoid my child when he/she wants to get too close and be a good friend of theirs.	0	1	2
15. Usually when anyone tries to get too close to my child, it does not bother him/her.	0	1	2

Appendix J

The Externalising Subscale of the Child Behavior Checklist (parent-report version)

CHILD BEHAVIOR CHECKLIST FOR AGES 6-18 CBCL Page 1/3

1. About how many close friends does your child have? (Do *not* include brothers & sisters)

☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours? (Do *not* include brothers & sisters)

☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

3. Does your child receive special education or remedial services or attend a special class or special school?

☐ No ☐ Yes - **kind of services, class, or school:** _____

_____

_____

4. Has your child ever had a serious head injury?

☐ No ☐ Yes – please describe: _____

_____

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months***, please mark the ***2*** if the item is ***very true or often true*** of your child. Mark the ***1*** if the item is ***somewhat or sometimes true*** of your child. If the item is **not true** of your child, mark the **0**. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

☐ 0 ☐ 1 ☐ 2 2. Drinks alcohol without parents' approval (describe):

_____

_____

_____

☐ 0 ☐ 1 ☐ 2 3. Argues a lot

☐ 0 ☐ 1 ☐ 2 16. Cruelty, bullying, or meanness to others

☐ 0 ☐ 1 ☐ 2 19. Demands a lot of Attention

☐ 0 ☐ 1 ☐ 2 20. Destroys his/her own things

☐ 0 ☐ 1 ☐ 2 21. Destroys things belonging to his/her family or others

☐ 0 ☐ 1 ☐ 2 22. Disobedient at home

☐ 0 ☐ 1 ☐ 2 23. Disobedient at school

☐ 0 ☐ 1 ☐ 2 26. Doesn't seem to feel guilty after misbehaving

☐ 0 ☐ 1 ☐ 2 28. Breaks rules at home, school, or elsewhere

☐ 0 ☐ 1 ☐ 2 37. Gets in many fights

☐ 0 ☐ 1 ☐ 2 38. Gets teased a lot

☐ 0 ☐ 1 ☐ 2 39. Hangs around with others who get in trouble

☐ 0 ☐ 1 ☐ 2 43. Lying or cheating

☐ 0 ☐ 1 ☐ 2 57. Physically attacks people

☐ 0 ☐ 1 ☐ 2 63. Prefers being with older kids

☐ 0 ☐ 1 ☐ 2 67. Runs away from home

☐ 0 ☐ 1 ☐ 2 68. Screams a lot

☐ 0 ☐ 1 ☐ 2 72. Sets fires

☐ 0 ☐ 1 ☐ 2 73. Sexual problems (describe):

_____

_____

_____

☐ 0 ☐ 1 ☐ 2 81. Steals at home

☐ 0 ☐ 1 ☐ 2 82. Steals outside the home

☐ 0 ☐ 1 ☐ 2 86. Stubborn, sullen, or irritable

☐ 0 ☐ 1 ☐ 2 87. Sudden changes in mood or feelings

☐ 0 ☐ 1 ☐ 2 88. Sulks a lot

☐ 0 ☐ 1 ☐ 2 89. Suspicious

☐ 0 ☐ 1 ☐ 2 90. Swearing or obscene language

☐ 0 ☐ 1 ☐ 2 94. Teases a lot

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months***, please mark the ***2*** if the item is ***very true or often true*** of your child. Mark the ***1*** if the item is ***somewhat or sometimes true*** of your child. If the item is **not true** of your child, mark the **0**. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

☐ 0 ☐ 1 ☐ 2 95. Temper tantrums or hot temper

☐ 0 ☐ 1 ☐ 2 96. Thinks about sex too much

☐ 0 ☐ 1 ☐ 2 97. Threatens people

☐ 0 ☐ 1 ☐ 2 99. Smokes, chews, or sniffs tobacco

☐ 0 ☐ 1 ☐ 2 101. Truancy, skips school

☐ 0 ☐ 1 ☐ 2 104. Unusually loud

☐ 0 ☐ 1 ☐ 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe):

_____

_____

_____

☐ 0 ☐ 1 ☐ 2 106. Vandalism

Appendix K

The Alabama Parenting Questionnaire (Short-Form version)

Instructions: The following are a number of statements about your family. Please rate each item as to how often it typically occurs in your home. Please answer all items.

	NEVER	ALMOST NEVER	SOMETIMES	OFTEN	ALWAYS
You let your child know when he/she is doing a good job with something.					
You threaten to punish your child and then do not actually punish him/her.					
Your child fails to leave a note or to let you know where he/she is going.					
Your child talks you out of being punished after he/she has done something wrong.					
Your child stays out in the evening after the time he/ she is supposed to be home.					
You compliment your child after he/she has done something well.					
You praise your child if he/she behaves well.					
Your child is out with friends you don't know.					
You let your child out of a punishment early (like lift restrictions earlier than you originally said).					

Appendix L

Modelling predictors of externalising aggressive behaviour

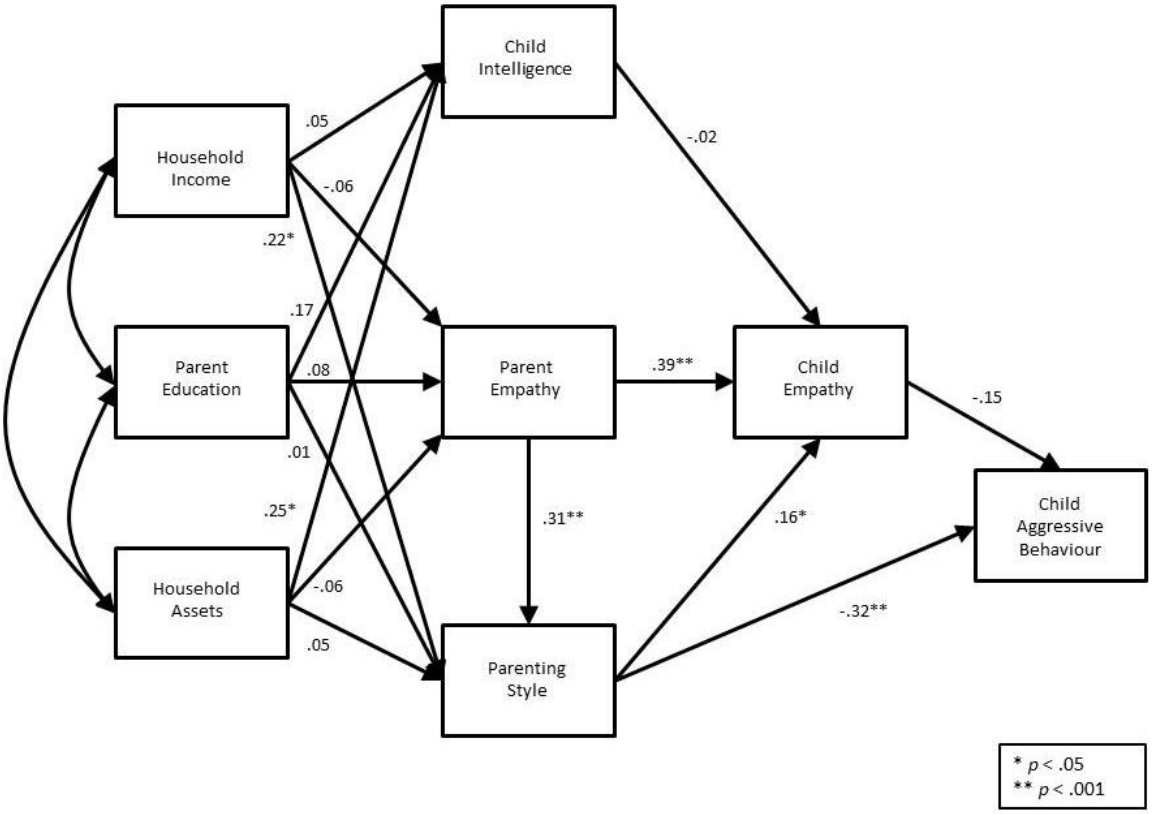


Figure 16. Modelling predictors of externalising aggressive behaviour in young adolescents (Model 1).

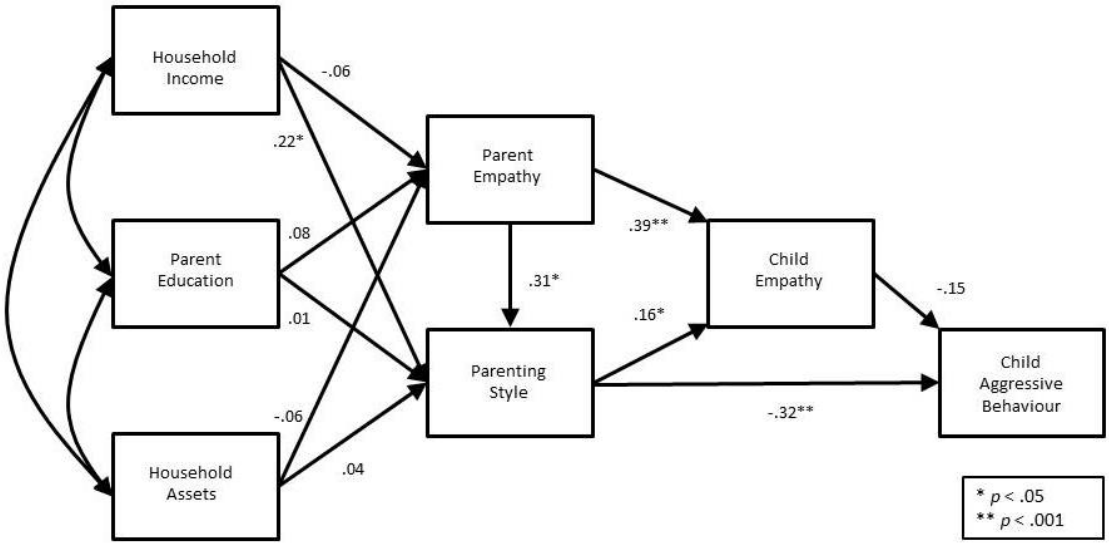


Figure 17. Modelling predictors of externalising aggressive behaviour in young adolescents (Model 2).